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SEPTEMBER 1959.

Monthly
Bulletin
of the International
Railway Congress Association
(English Edition)



UNIVERSITY OF ALBANY

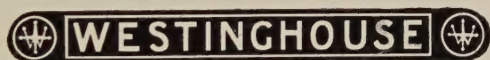
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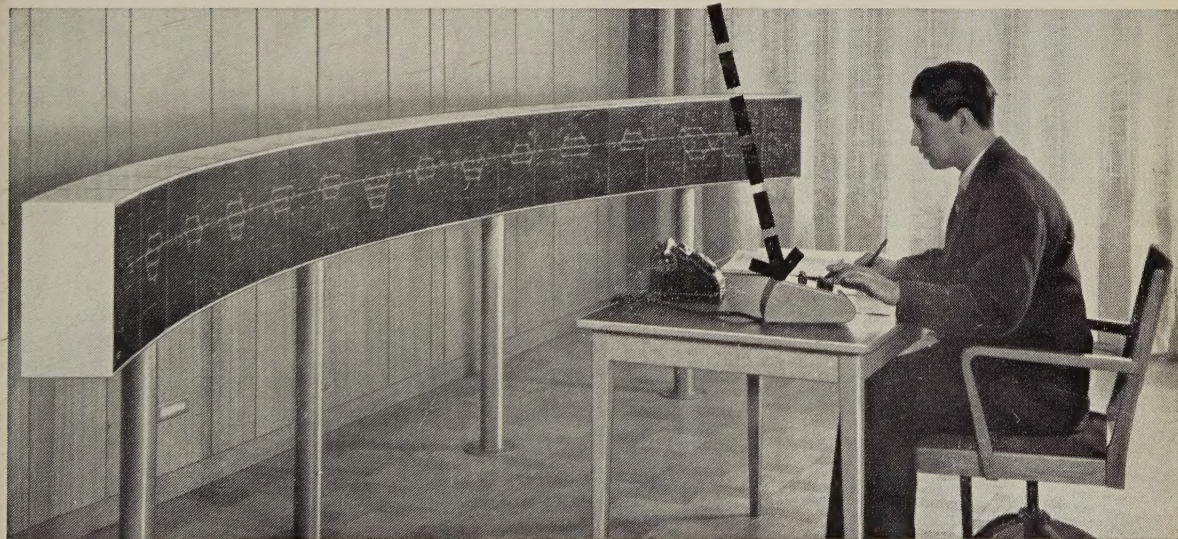
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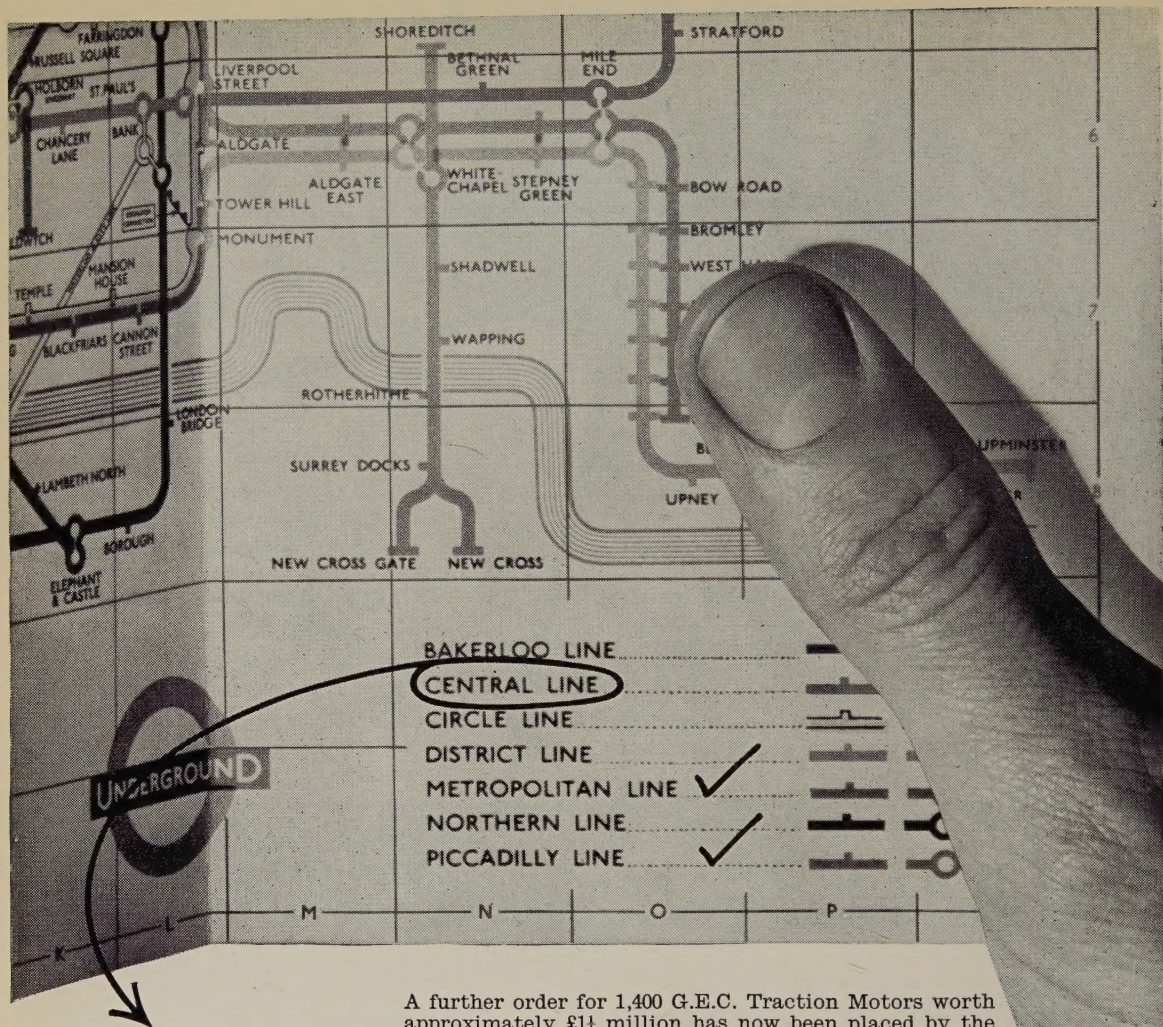


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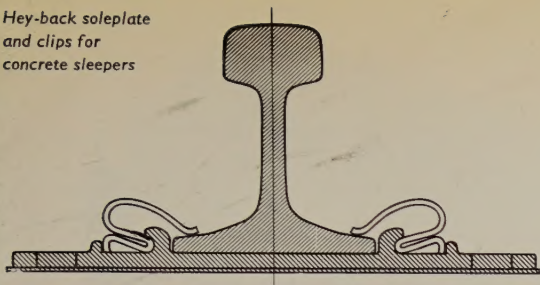
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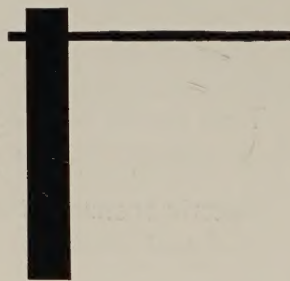
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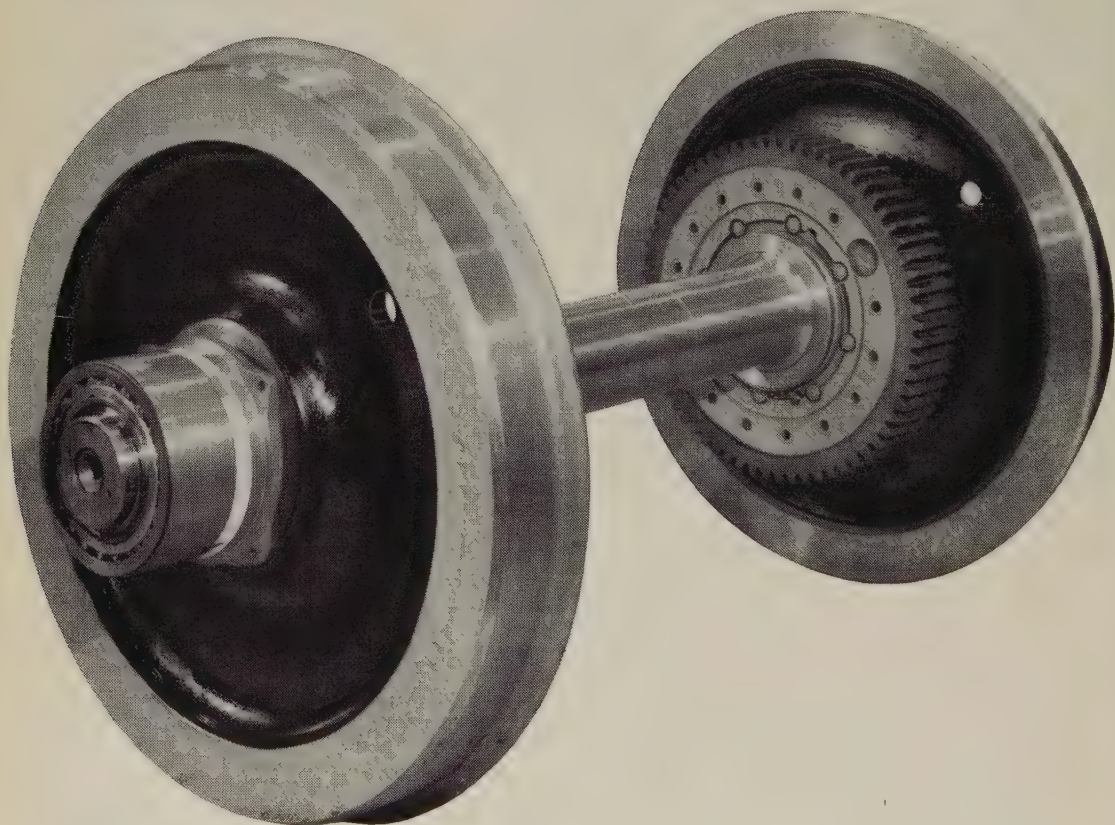
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MONTHLY BULLETIN

OF THE

INTERNATIONAL RAILWAY CONGRESS ASSOCIATION

(ENGLISH EDITION)

PUBLISHING and EDITORIAL OFFICES : 19, RUE DU BEAU-SITE, BRUSSELS

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An edition in French is also published.

BULLETIN
OF THE
INTERNATIONAL RAILWAY CONGRESS
ASSOCIATION
(ENGLISH EDITION)

[385 (06 .112)

SEVENTEENTH SESSION

Madrid : 29th September to 7th October 1958.

GENERAL PROCEEDINGS

Section IV : GENERAL

INAUGURAL MEETING

September 30, 1958, at 9.30 a. m.

PRESIDENT : D^r H. GSCHWIND.

PRESIDENT OF THE GENERAL MANAGEMENT OF THE SWISS FEDERAL RAILWAYS.

MEMBER OF THE PERMANENT COMMISSION OF THE ASSOCIATION.

— The meeting opened at 9.30 a.m.

The President (in French). — Gentlemen, the Permanent Commission has appointed me President for Section IV.

As *Vice-Presidents*, I suggest we elect :

Mr. P.C. MUKERJEE, Chairman, Railway Board, Ministry of Railways, Government of India, Member of the Permanent Commission of the Association;

Mr. R.F. MARRIOTT, Advisory Engineer, New Zealand Government Railways,

Member of the Permanent Commission of the Association;

Mr. W.H. MAASS, Advisory Engineer to the High Commissioner for the Union of South Africa, Member of the Permanent Commission of the Association;

and as *Principal Secretary* :

Mr. P. SCHOONJANS, Ingénieur Principal, Belgian National Railways.

(Signs of approval and applause.)

— The Section, under the guidance of the President, then completed the nomination of its officials and drew up its agenda.

QUESTION 7.

Advantage of the use of high speed electronic apparatus for certain administrative work such as :

- 1) the making out of pay slips;**
- 2) traffic and stores accounts;**
- 3) the checking of the movement of empty and loaded freight wagons, thereby improving the distribution of rolling stock;**
- 4) compiling more rapidly already existing statistics, thus having also the possibility of preparing new ones,**

Preliminary documents.

Report (America [North and South], Australia, [Commonwealth of], Burma, Ceylon, Egypt, India, Iraq, Iran, Republic of Ireland, Japan, Malaysia, New Zealand, Norway, Pakistan, South Africa, Sudan, Sweden, Union of Soviet Socialist Republics and the United Kingdom of Great Britain and Northern Ireland and dependent overseas territories), by Sten UBBE. (See *Bulletin* for April 1958, p. 435.)

Denmark, Ethiopia, Finland, France and French Union, Western Germany, Greece, Hungary, Indonesia, Italy, Lebanon, Luxemburg, Netherlands, Poland, Portugal and overseas territories, Rumania, Siam, Spain, Switzerland, Syria, Turkey, Viet-Nam and Yugoslavia), by B.H. DE FONTGALLAND. (See *Bulletin* for May 1958, p. 695.)

Report (Austria, Belgium and Colony, Bulgaria, Cambodia, Czechoslovakia,

Special Report by B.H. DE FONTGALLAND. (See *Bulletin* for September 1958, p. 1415.)

DISCUSSION BY THE SECTION.

Meeting of the 30th September 1958.

PRESIDENT : D^r H. GSCHWIND.

— The meeting opened at 9.45 a.m.

The President (in French). — Gentlemen, we shall now embark upon our work in examining Question 7.

The use of electronic equipment of high efficiency is a matter of great importance to us. In the past, most of the railway problems were almost exclusively of a technical nature. To-day, due to

the difficult situation of the railways, the competition, which we have to meet, and the recurring deficits, we must attempt to increase the economic efficiency of our services, as the costs of administration absorb a good deal of traffic revenue. The use of electronic equipment opens up new perspectives. The reports prepared by Messrs. DE FONTGALLAND and Sten UBBE have shown us the present applications and the possibilities for the future. The Summaries of the Special Report will serve as the basis of our discussion.

I shall now call upon our Reporters to speak. I thank them for their very interesting reports and would ask Mr. DE FONTGALLAND, *Special Reporter*, to recall for us some of the principal points.

Mr. de Fontgalland, *Special Reporter* (in French). — Mr. PRESIDENT, Gentlemen, the purpose of Question 7 is to study the possibilities of the use, by the Railway Administrations, of these new automatic data processing machines which are called, in French, « ensembles électroniques de gestion » — a more or less satisfactory translation of the American term : « electronic data processing machines ». As these machines are of quite recent origin — it may be recalled that the first of them was taken into operation as recently as 1951 and that their development outside the United States has only begun during the last few years — the experience of the Railway Administrations in this field is still very limited. That is why our reports are more concerned with future prospects than with existing applications.

Let us very briefly recall the definition

which we have adopted for an electronic data processing machine : Such a machine consists of electronics units of very high speed and capacity, capable of carrying out any calculation or operation of logical character (i.e., mainly comparisons) working from a stored programme.

The faculty of carrying out logical operations and the possibility of storing the working programme in the machine thus represent the basic characteristics of electronic data processing machines and distinguish them, in particular, from electronic computers which have been greatly developed in recent years, though the exact border line between electronic computers and small electronic data processing machines may sometimes be difficult to define.

With the aid of these two basic characteristics, utilized by the data processing specialists, it has become possible to translate the process of logical reasoning into programmes which can be followed and automatically carried out by the machine. Now, any managerial act — and, particularly, any managerial decision — is normally dictated by logical reasoning. The literary meaning of the French term « ensemble électronique de gestion » : « Electronic management apparatus », is therefore well in keeping with reality.

Let us try and amplify this point which is essential to the understanding of the possible applications of an electronic data processing machine.

What is, in practice, the essence of the managerial function of an undertaking? With a good deal of oversimplification, it is this : to record, in a certain number of basic documents,

all the changes that have occurred in the previous position of the undertaking and to evaluate these data in such a way that, in each case, the best possible decisions can be made at all levels of command. If these changes conform to those which had been foreseen, there is no need to take any special action: the programme is carried out as planned. If, on the other hand, the changes reveal anomalies, a rapid decision is called for. Now, with the aid of electronic data processing machines, it is possible to program in advance for all possible anomalies and to bring out, automatically and very quickly, all their logical consequences. Managerial work will therefore be greatly facilitated.

It would hardly seem necessary to recall that these machines, which are variously described in certain publicity circles as « electronic brains » or « robots » or the like, do not in fact « think » but are content faithfully to carry out the instructions of a programme which, in every detail, has been fixed by man. All that the machine can do, is to supply the data required for the decision. Moreover, all decisions involve, apart from the measurable parameters, other subjective parameters which can of course not be fed into the machine, however perfect it may be.

Another very important consequence of this definition is that the electronic data processing machines are universal tools. Suffice to recall the evolution that took place in the field of information equipment prior to the advent of the electronic data processing machine, i.e. essentially the punch card system. The same machines are used for dealing

with virtually the same categories of problems in all kinds of undertakings, no matter whether they belong to industry, commerce, administration or even to study and research. This remains true for electronic data processing machines, and in this respect, the reports have given some indications on the similarity of applications to which the electronic data processing machines are put by undertakings of greatly variegated character.

Therefore, if the electronic data processing machines can be regarded as instruments of management which are, by definition, suited for all types of undertakings, it is obvious that they can also be used by the Railway Administrations. In this connection, the reports have brought out three aspects which are particularly important as regards the specific managerial problems of a railway undertaking.

They are: the great volume of basic data; the extreme diversity of the statistics handled; and finally, the multiplicity and geographical dispersion of what may be called the railway establishments, i.e. the different points of a railway network where these different activities are carried out and recorded.

Through adapting these features — which can be summed up as representing, at the same time, a great volume of data and a great volume of results — to the technical possibilities inherent in electronic data processing machines, the latter are very clearly particularly well suited to the solution of the problems with which the Railway Administrations are confronted. However, the reports have made two important reservations.

The first qualification is this : These machines are obviously complicated and therefore expensive. Their acquisition can therefore only be justified above a certain minimum amount of work. This was already the case with punch card machines. Small undertakings are not always interested in mechanisation. There is a certain minimum level above which mechanisation becomes an economic proposition. This applies equally to electronic data processing machines. In fact, most of the Administrations which have been good enough to reply to our questionnaire have emphasized this point.

The second point is extremely important. As we are dealing with data processing machines, it is first necessary to transmit the basic data, and then to disseminate the results. Now, with the rare exception of an urban railway network, a railway system may extend over several thousands or even several tens of thousands of kilometres so that the problem of liaison and telecommunications may constitute an impediment to the use of electronic data processing machines or may, at least, call for a special study and for certain capital investments which might be considerable.

Such are, very briefly, the possibilities. What are, according to the replies received from the Administrations, the realisations carried out so far?

As I have said at the outset, the number of present-day applications is still extremely small. To all intents and purposes, we are still largely in the study phase.

Even so, a first tendency is already apparent. It is this : — Practically all the Administrations which have placed an

order for an electronic data processing machine or intend to do so shortly, have given priority to dealing with problems which are already dealt with by punch card methods. This tendency is perfectly understandable, because the results can be obtained more quickly, the equipment can pay its way sooner and, generally, the study problem will be easier. But it is worth pointing out that these problems, with very rare exceptions, are not specific to the railways.

What is, in fact, the specific problem of a railway administration? It is to dispatch and carry passengers and goods. Hence the problems of routing, the problems of transport proper with their particular aspects, the problems of rolling stock circulation and utilisation and of the distribution of empty wagons. For these problems, it will be rare to find counterparts in otherwise comparable types of undertakings.

Studies are being carried out, to some extent, in many places but none of the Administrations which have been good enough to reply to our questionnaire has given us the impression of having, up to now, found a new solution to these problems.

In this field, the way ahead therefore still remains almost entirely open. The directions in which certain studies are orientated give rise to techniques which are often rather difficult, and especially to operational research techniques. And in this connection, it is possible to state that, due to the calculating capacity of electronic data processing machines — and this is a question, not so much of logical processing, but of arithmetical calculation — it has certainly become

possible to find solutions to problems which it had been impossible or very difficult to solve without high-speed calculating machines. We know that certain Administrations are actively pursuing their studies in this sphere which we certainly regard as one of the finest applications for electronic data processing machines.

Finally, some Administrations have indicated in their reply that they intend to make use of all the possibilities offered by electronic data processing machines by using them for what we have termed « centralized management »; i.e. to try and obtain, from the simultaneous processing of a minimum number of basic documents, all the data required for the management. These Administrations have made a point of stressing the importance, the difficulty and the length of time of the corresponding studies.

The Reporters have also emphasized the possibilities offered by the electronic data processing machines as regards the solution of problems common to several Administrations, such as common tariffs, wagon pools, etc.

Finally, the reports include some reflections on the economics of electronic data processing machines — reflections which are still theoretical, and which distinguish between direct and indirect savings.

The Special Report concludes with some information concerning the organisation of the studies, emphasizing the fact — and this is certainly one of the points of most immediate interest to the Administrations — that such studies are of necessity lengthy and complex and

that, if early and correct results are required, the working teams must consist of highly qualified staff.

These are, Mr. PRESIDENT, the main points of the report, briefly summarized.

The President (in French). — I thank Mr. DE FONTGALLAND for his remarks. I now call upon Mr. STEN UBBE.

Mr. Ubbe, *Swedish State Railways and Reporter*. — I have nothing to add to the report of Mr. DE FONTGALLAND; we have worked together, and discussed this problem, and, as I pointed out in my report, it now appears that this question has been taken up for consideration at far too early a stage, at least at the time when the questionnaire had to be answered. It may be that the representatives of the different Administrations here to-day can add something new to the problem, but personally at this stage I have nothing to say.

The President (in French). — Gentlemen, the general discussion can begin. In accordance with the traditions of Congress, we shall discuss the draft summaries rather than the preliminary reports themselves. In studying the summaries and proposing amendments, you will have every opportunity to say something also in regard to the reports themselves.

We shall thus begin the discussion of the summaries. I ask the *Principal Secretary* to read Summary No. 1.

Mr. Schoonjans, *Principal Secretary* (in French). — *Draft Summary No. 1:*

1. In view of the extreme novelty of the subject concerned, the summaries outlined

below can only have an informative value. A certain number of Administrations, of varying importance, are already using electronic data processing machines (EDPM) or are engaged in preliminary studies and have placed orders. So far, however, experience is not sufficient to warrant definitive conclusions.

The President (in French). — The discussion is open. — Is there anyone wanting to speak on this Summary?

Mr. Hinds, *British Transport Commission*. — I would first like to agree, up to a point, with what Mr. UBBE has said : that the question and some of the answers with which we are dealing here this morning are rather premature. The subject with which we are dealing, that is the development and use of electronic calculators and computers in railway work, is moving so fast that the questions which were posed when the agenda for this Congress was drawn up are already out of date in that they do not now represent the most important objects for which we should use these machines. Furthermore, the questionnaire which was sent out to participating railways over a year ago, was completed many months ago, and the answers to it are already out of date (in so far at least as British Railways are concerned). The information which we gave then does not represent the situation as it is to-day, and I think I can now truly say that we have at least some experience in the use of these machines, and have reached the stage where is not « just something in the clouds ».

To take one small aspect in which the summary is incorrect : there are at present in Great Britain ten different firms which

are making computers to the full degree of automaticity to which Mr. DE FONTGALLAND refers.

In British Railways, we had a large number of tasks performed at service bureaux by computers; these were tasks of the type which were not recurrent; they embodied a large mass of data and of calculation based on this data, but they have been done once and for all; they are not repetitive tasks. Amongst them, we calculated on a computer LEO the shortest distances between all the 6 000 freight terminals on British Railways — this was completed 18 months ago. We also calculated the timings and speed curves for new electronic and diesel services for a number of different locomotives, and for a number of different tracks, in order to begin to plan the new services when these locomotives are introduced. Both of these tasks we found, not only very much quicker when performed by service bureaux on our behalf, but also very much cheaper than if they had been done by the conventional method; in fact, the first task, would have been quite impossible to perform by ordinary means because it would have taken 25 years. These are the type of tasks of which we have had experience at service bureaux.

We have already in British Railways 18 electronic calculators of the smaller type, and five computers of the automatic type installed and in use. A further four calculators and three computers are on order. Of the five computers which have been installed, one is purely for scientific and engineering computing, and so does not come within the scope of our question to-day. Of the four computers that are

to be employed on office work, one, a P.C.C., was installed in the Western Region at Swindon in 1957, and has been used to calculate the weekly pay of 11 000 employees, mostly workshops staff. As the result of the use of that machine, the staff of the pay office has been reduced by about 31. We are making savings which amount to £9 000 per annum, and that is within 10 % of the direct savings which were calculated when this machine was planned. This machine is loaded to full capacity at the peak period of the week, but in off-peak hours has been used for working out programmes for stores accounting and stock control. A second machine is being ordered, which is included in those which I have already mentioned, to take over stores accounting and control.

Furthermore, in June 1956, a HEC machine was installed at Paddington, and this, too, has been employed on weekly pay calculations, and it is taking over an increasing number of tasks, although it is not yet employed at capacity. However, we have already made a saving of 11 in the pay office staff with which this machine is dealing.

The machines which have been ordered will be used in the first instance for pay, for traffic statistics, and for stores accounting, and these are jobs which were done in the past on punched card machines, and are tasks which were selected for the very reasons which Mr. DE FONTGALLAND has so well outlined in his report.

I suggest, therefore, Mr. PRESIDENT, that it is possibly not quite accurate to say, as is stated in the summary, that at the present time we have only plans;

we claim that we have started with real deeds.

The President (in French). — I thank Mr. HINDS for his interesting remarks. It should be kept well in mind that the reports have been compiled on the basis of the questionnaire. In view of recent technical progress, and the progress in applications, the replies to this questionnaire may well be outdated by now. I think, however, that we must rule out a change of all the summaries. If we wanted to bring all the experience up to date, a second report would be needed. That is why, at the end of their summaries, the Reporters themselves suggest that the question should again be put on the agenda of a forthcoming Congress.

Are there any other remarks?

Mr. DE FONTGALLAND, will you please take note of Mr. HINDS' suggestion regarding Summary No. 1?

Mr. de Fontgalland (in French). — In what way, Mr. PRESIDENT?

The President (in French). — By just keeping in mind that the experience of which we speak is, in a sense, out of date due to the development that has taken place since the questionnaire was forwarded.

Mr. de Fontgalland (in French). — I would not go as far as to say that all the experience of last year is outdated. Admittedly, we have, since then, the experience gathered by British Railways — a fact which, incidentally

tends to corroborate the conclusions of the Report by demonstrating that the electronic data processing machines are indeed of interest to the railways. The British Delegate has told us that, since their report was compiled, they have taken several electronic data processing machines into operation. The same applies to the French Railways. For the last six months, we have been using an I.B.M. 650 computer, one of the two referred to in our reply, and after six months of operation, we can state that the expectations have been fully realized, and that we have been able to place at the disposal of the supplier exactly the number of punch card machines that had been anticipated.

I am therefore in complete agreement with Mr. HINDS when he says that progress has been very rapid, and that the replies formulated a year ago are no longer accurate as regards, in particular, the advance of studies and the choice of applications. But, in my opinion, such development merely confirms the conclusions reached by the Reporters.

The President (in French). — I agree. Would you suggest a modification of the wording, Mr. HINDS?

Mr. HINDS answers in the negative.

— *The final text of Summary No. 1 will be submitted to the Assembly at the next meeting.*

The President (in French). — We now pass on to Summary No. 2.

Mr. Schoonjans (in French). — *Draft Summary No. 2 :*

2. Electronic data processing machines are made up of units which, owing to the use of electronics, operate at very high speeds and have high capacity; they are able to carry out any calculation or logical operation (comparison), working from a stored programme.

They are « machines for the automatic processing of information », and their potentialities are far in excess of those offered by standard punch card equipment. In particular, they permit the application of the so-called management by « exception » or « difference » method to problems comprising a considerable number of data or parameters, so that the machines are well suited to serve as instruments of management and, in particular, as a means of arriving at decisions.

The President (in French). — The discussion is opened. Are there any remarks?

Mr. Strauss, *Swiss Federal Railways* (in French). — Mr. PRESIDENT, Gentlemen, it seems to us that the expression « very high capacity » should be defined more closely.

The latest developments set up the problem of the choice of the universal machine as opposed to the specialized machine. The former, capable of doing all kinds of work, is on the market and ensures medium efficiency in numerous applications. But its capacity will rarely be used to the full since its equipment will be determined by the most difficult case. The second type of machine, « made to measure » as it were, will be more expensive as it cannot be obtained on the market. On the other hand, it will have the advantages of perfect efficiency and constant availability.

With the latest types of universal machines, this permanent (or quasi-

permanent) availability is also ensured by the fact that these machines permit the superposition of several programmes while the waiting times, in priority order, are limited to the jointly used organs. For instance, the arithmetical unit cannot make two additions at one and the same time, but it can add up data of one programme at the same time as the machine determines a factor for another programme so that the delays caused by the superposition of programmes are hardly noticeable.

With the latest technical development, it has become possible to divide the electronic data processing machines into units which can be combined with a minimum equipment, generally without punch cards, which is particularly economic. Such a machine could not cope with very great volumes of data, but it would be suitable for solving well defined problems while permitting a subsequent extension up to the level of a high-capacity electronic data processing machine.

I would therefore propose to add, in brackets, after « owing to the use of electronics, operate at very high speeds and have a very high capacity », the words : « capacity of internal and external storage, possibility of connecting auxiliary machines, etc. »

The President (in French). — Any other suggestions?

What does the Reporter think of this amendment?

Mr. de Fontgalland (in French). — I fully agree with Mr. STRAUSS. In fact,

this can only serve to amplify the definition of electronic data processing machines.

The President (in French). — Do you accept the amendment proposed by Mr. STRAUSS?

(**Mr. de Fontgalland** indicates assent.)

— *The amendment is accepted.*

— *The final wording of this Summary will be submitted to the Assembly at the next meeting.*

The President (in French). — We now pass on to Summary No. 3.

Mr. Schoonjans (in French). — *Draft Summary No. 3 :*

3. Electronic data processing machines thus appear to be suitable for dealing with all the problems arising from the management of a railway system, in particular :

- control of staff and of supplies and materials;
- accountancy;
- statistics;
- costing;
- budgetary control;
- user of rolling stock (turn-round);
- studies of fares and charges;
- technical and scientific calculations (timetable calculations, etc.);
- etc.

The President (in French). — The discussion is opened. Does anyone want to speak?

Mr. Strauss (in French). — **Mr. President**, Gentlemen, I apologize for speaking up again, but I have only a minor question to ask as regards the sequence of items mentioned in the draft summary : « Control of staff and materials, accountancy, costing, budgetary control, user of rolling stock (turn-round) » are the main tasks. When these are accomplished, the machine gives also the statistics. Then the list continues with the technical and economic studies, fares and charges, etc.

I should like to ask if it would not be more logical to place the statistics after « user of rolling stock (turn-round) », since statistics are the product of the five preceding functions.

The President (in French). — **Mr. DE FONTGALLAND**, what do you think?

Mr. de Fontgalland (in French). — I fully agree **Mr. STRAUSS**. This is more logical.

The President (in French). — Is the proposed amendment adopted? (*Assent.*)

Are there any other suggestions? If this is not the case, we pass on to Summary No. 4.

— *Summary No. 3, thus modified, is adopted and the final text will be submitted to the next meeting.*

Mr. Schoonjans (in French). — *Draft Summary No. 4 :*

4. The use of an electronic data processing machine appears to be subject to the following conditions :

— a minimum level of activity, measured in terms of « basic data ». The advent, on

the market, of electronic data processing machines of small capacity will tend to reduce this minimum level;

— the creation of a suitable system of links between the establishments from which the data emanate, the machines by which these data are processed, and the departments interested in the results.

The President (in French). — The discussion is open.

Mr. Strauss (in French). — **Mr. President**, Gentlemen, I have another minor observation to make here which rather follows from Summary No. 2, adopted earlier on.

In the second paragraph, we talk of « electronic data processing machines of small capacity ». Could we not rather say « electronic data processing machines of extensible capacity, with limited initial equipment »? The Administration using the machine might therefore take the latest developments into account.

The President (in French). — Any other remarks?

Mr. Hinds. — I wish to make a further point : I would like to propose to add a third to the two conditions which are in the summary. The third condition that I suggest is :

« ... the generation of prime data in machine language at source wherever this is practicable . »

In his report, **Mr. UBBE** refers to the data processing of machine tickets. We, too, in Great Britain are studying this problem, but from a special aspect. The ticket dispensing machines which we

use produce all the information relating to each ticket issued, but as this information has to be analysed on a computer either for statistical or accounting purposes, the data printed by the ticket machine must first be completed and punched by hand on to cards or on to tapes. Now this punching process is very costly; it is very slow, and it tends to the introduction of a very large number of mistakes. We are examining two different methods of overcoming this difficulty, and avoiding the necessity for copying and punching. But this is only one special case, because in railway work the prime documents are small in number or type, but very large in the number of copies. Frequently, these prime documents are written on small pieces of paper with a blunt pencil by a man who can hardly write. There are many mistakes made in copying these prime documents on to punched cards or punched tapes, so that the application to the ticket dispensing machine is only a special case. In order to make the best use of the large computers, I consider it essential, wherever it is possible, to have the data generated in machine language at its very source.

It is for that reason that I propose the third condition under paragraph 4.

The President (in French). — Are there any further observations?

Mr. Cecchi, Italian State Railways (in French). — **Mr. PRESIDENT**, Gentlemen, I should like to make the point that it is necessary to distinguish between the conditions which must exist prior to the introduction of an electronic data pro-

cessing machine, and those which must be observed when the machine is in use. In my opinion, the only conditions belonging to the first category is that of a minimum level of activity. This is a necessary condition if the electronic data processing machine is to be useful and economic. The creation of a system of links between the establishments from which the basic data emanate is merely one of several conditions to be observed when the machine is in use, in order to enable the machine to work at all, and to obtain a result.

In my opinion, these two categories of conditions should be covered by two distinct points in our Summaries.

Mr. Bosc, French West African Railways (in French). — **Mr. PRESIDENT**, the discussion seems to turn to the definition of the minimum basic data required to warrant an electronic data processing machine. I think that we shall be able to see our way more clearly if we take the discussion of Summary No. 5 before that of Summary No. 4. Summary No. 5 would elucidate the range of small electronic data processing machines which, in most cases, seem to be in operation already. On this basis, one might define the level above which the basic data would warrant the installation of a complete E.D.P.M. outfit.

The President (in French). — What does the Reporter think?

Mr. de Fontgalland (in French). — In reply to the question raised by **Mr. Bosc**, I do not think that we could define a minimum level as there is no common

unit of measurement as between one Administration and another. This already applies to punch card systems. Among the Administrations which « appear » to be of similar importance — and I say « appear » because comparisons are on the contrary difficult to make — some believe that they are already within the economic range of mechanisation whilst others think that they are still in the sphere of manual work. Also, I cannot see how we could define a minimum level, even one of merely indicative value to the Administrations.

Mr. Bosc (in French). — I am not merely referring to the definition of a minimum level. I think that, if we would first examine Summary No. 5 which departs from the commencement of mechanisation — and it would perhaps be more logical to pass from the commencement of mechanisation to more advanced mechanisation, and thence to the electronic data processing machine — this would elucidate the problem better. It is, in fact, very difficult to define a critical level.

Mr. de Fontgalland (in French). — I have no particular objection to M. Bosc's proposal but I should like to point out that, logically, Summaries Nos. 5 and 6 should follow each other.

Mr. Bosch (in French). — Let us keep them together. We might take Summaries Nos. 5 and 6 before Summary No. 4.

Mr. de Fontgalland (in French). — If one wishes to make this change, it is therefore necessary to place Summaries Nos. 5 and 6 before Summary No. 4.

The President (in French). — Are you agreed that the sequence of the Summaries is changed in this way? Summaries Nos. 5 and 6 would become Summaries Nos. 4 and 5, and Summary 4 would become No. 6 (*Assent*).

We shall therefore examine Summary No. 5 which now becomes No. 4.

Mr. Schoonjans (in French). — *Draft Summary No. 5 (new No. 4) :*

5. The applications first dealt with by an electronic data processing machine are, in most cases, those already handled by standard punch card methods. The study of these applications is easier, and economic advantages can be derived from the equipment more rapidly.

Mr. Carlier, *Belgian National Railways* (in French). — **Mr. President**, Gentlemen, I am wondering whether it might not be useful to emphasize certain other advantages which can be obtained, during the first phase, by applying electronic data processing machines to problems already handled by standard punch card methods. Apart from the greater economic efficiency thus ensured, this utilisation of electronic data processing machines will enable the staff to become familiar with the equipment, and this will happen with applications which, though not exactly easy, are still relatively simple compared with management problems which it is intended to tackle later. In this way, the Administrations are soon able to rely on a tool which enables them to embark on new studies, and to try out certain solutions at hours when the machine is not in normal use.

I would therefore propose to complete

the draft of Summary No. 5 by the following sentence : « At the same time, the staff becomes progressively more familiar with the electronic data processing machine, and the latter is available to the specialists for the study of more complex problems which require a longer period of preparation. »

The President (in French). — Does anyone want to speak?

Mr. de Fontgalland (in French). — I quite agree with the ideas put forward by Mr. CARLIER. We have not, in the Summaries, specifically referred to this utilisation of staff, simply in order to keep the text concise, in the belief that the words « the study of these applications is easier » already imply the idea that the research staff will have an easier task and that the words « economic advantages can be derived from the equipment more rapidly » contain the idea that the equipment will be used as soon as possible, and also for more advanced studies.

But, apart from the fact that it will lengthen the text somewhat, I have personally no objection to this amplification of the text.

The President (in French). — Are you agreed on this amendment? (*Assent*).

Mr. Hinds. — I would agree with Mr. CARLIER that this is an important aspect, because it does enable one to make machines quicker, and familiarity does help to increase the enthusiasm of the staff for the use of these machines.

The President (in French). — Mr. CARLIER's amendment is thus accepted? (*Assent*).

— The final text will be submitted to you at the next meeting.

We now pass on to the draft of Summary No. 6.

Mr. Schoonjans (in French). — *Draft Summary No. 6 (which now becomes No. 5)*

6. The most complete utilisation of the potentialities of electronic data processing machines consists in « centralized management » or « integrated data processing », i.e. the centralized processing of all data contained in the various basic documents in which the activity of the system is reflected, with a view to obtaining from them all the results required for management purposes in all spheres. The electronic data processing machine thus represents a « Management Information Centre », at the disposal of the different departments.

It is important to make the point that such a conception is by no means incompatible with the decentralisation of executive functions which is indispensable in a railway system. Introduction must be gradual and calls, in particular, for a very detailed study of all the information circuits of the system, and for a very efficient organisation of the internal links within the Administration.

The President (in French). — The discussion is opened on the *new Summary No. 5*.

Mr. Strauss (in French). — Mr. PRESIDENT, Gentlemen, in the second paragraph, the Reporter arrives at the very interesting and very fair conclusion that « it is important to make the point that such a conception is by no means incompatible with the decentralisation of executive functions which is indispensable

in a railway system ». In these conditions, is it not advisable to add at the end of the Summary : « The decentralisation of management could also be envisaged by using a number of low capacity E.D.P.M. interconnected only for the purpose of exchanging processed data ».

The President (in French). — Are there any other suggestions?

Mr. Schmitz, *German Federal Railway* (in French). — I should like to put a question.

It is stated in the Summary that the most complete utilisation of the potentialities of electronic data processing machines consists in « centralized management », i.e. the centralized processing of all data contained in the various basic documents in which the activity of the system is reflected.

I wonder if the question of seat or berth reservations should not come in at this point. On the ferry-boats plying between Germany and Scandinavia, the berth reservation service is carried out by teleprinters. It could be carried out by electronic machine but this would obviously mean that a machine must be specially designed for this purpose and used exclusively for this work.

Mr. de Fontgalland (in French). — **Mr. President**, when compiling the questionnaire on which this report is based, we excluded from the high-capacity electronic machines such extremely specialized machines as those dealing with seat reservations, since such machines are, more often than not, manufactured

on demand, for a given problem. We thought that the question was framed much more with a view to machines suitable to deal with management problems at large, the most important of which are quoted in the very text of the question.

Have I answered your question, **Mr. Schmitz**?

Mr. Schmitz (in French). — I understand that. This is obviously so, but there are two alternative processing methods. The documents can be centralized by standard punch card processing methods. But it is a different proposition to centralize the decentralized units by means of teleprinters. Will the central machine always be available for this work?

I think that it is necessary to keep this question in mind for the future.

Mr. de Fontgalland (in French). — Under this new aspect of data centralisation by teleprinters, this question is linked with the one posed by **Mr. Hinds** earlier on which, I think, we will still come up for discussion. Briefly, it is a question of introducing the machine language into the transmission of data at a point as close as possible to the source. I think that, in this respect, we are quite agreed. I had misunderstood your question to begin with.

Mr. Hinds. — I gather that the last question was really whether it was possible to consider a seat reservation machine as part of a centralised data processing installation.

We have, in fact, looked into this question in Britain. Apart from the problem of machine language and telecommunications, it would be impossible to include seat reservations as part of the work of an electronic data processing unit, as the machine required for the latter would need to be free and ready at all times for this purpose.

I think that answers the special question that has been made.

Mr. Schmitz (in French). — This is quite clear. I agree. But I think it is necessary to raise this question with a view to the future. The electronic machines offer great advantages for this kind of applications.

Mr. de Fontgalland (in French). — I should like to be quite sure to have got at the bottom of that question. Did you mean to say that the specialized seat reservation machines have a great future?

Mr. Schmitz *makes a statement in German.*

Mr. Schoonjans (translating into French). — Mr. SCHMITZ thinks that it is necessary to distinguish between conventional machines, even those comprising electronic devices, which must deal with a great number of basic documents, on the one hand, and specialized machines on the other hand. He is wondering whether we should not, in the present discussion, deal rather more with these specialized machines which, for a well defined function, make use of a central organ and a great number of outposts. This is what his suggestion boils down to.

The President (in French). — Would you like to make a precise suggestion, Mr. SCHMITZ?

Mr. Schmitz *replies in German.*

Mr. Schoonjans (translating into French). — Mr. SCHMITZ suggests that the sentence « ... consists in ... the centralized processing of all data contained in the various basic documents... » in the new Summary No. 5 should be amplified so as to bring out the exact problem of specialized machines or organisations.

The President (in French). — We are discussing a special point which might perhaps be added to the former Summary No. 4 (new Summary No. 6).

Mr. de Fontgalland (in French). — I think, Mr. PRESIDENT, that Mr. SCHMITZ's suggestion is in line with that made by Mr. STRAUSS. If I have understood correctly, Mr. STRAUSS pointed out, earlier on, the possibility (brought out in the Summary) of having an electronic data processing machine of very high capacity, ensuring an integral centralisation of data processing. Mr. STRAUSS added that there was another possibility which consisted in segregating the problems and decentralizing the data processing of each major category of problems in electronic data processing machines of lower capacity, and establishing a central liaison system in order to merge the global results. This is, I believe, a faithful rendering of your thoughts?

Mr. SCHMITZ deals, basically, with a rather specific case of the question raised in a general way by Mr. STRAUSS (Mr.

SCHMITZ indicates assent), and if we add a sentence dealing with the point of view put forward by Mr. STRAUSS, we shall *eo ipso* cover the remarks of Mr. SCHMITZ.

The President (in French). — Mr. DE FONTGALLAND, do you accept the point of view put forward by Mr. STRAUSS? (*Assent*).

Gentlemen, are you agreed on the amendment by Mr. STRAUSS? (*Assent*).

In consequence, the amendment suggested by Mr. SCHMITZ is also accepted, and the final text will be submitted to you at our next meeting to-morrow.

We pass on to Summary No. 6, or rather, we revert to the *former Summary No. 4*.

Three amendments have already been suggested. Are there any others?

I would ask Mr. DE FONTGALLAND to outline the position.

Mr. de Fontgalland (in French). — Mr. PRESIDENT, three amendments on the subject of this question have been proposed.

One, by Mr. STRAUSS, deals with questions of form and calls for an amplification of the term : « electronic data processing machines of small capacity ». Keeping in mind the amplifications made, at the request of Mr. STRAUSS, to Summary No. 2 on the very conception of the capacity of an electronic data processing machine, and the possibility of grouping different units in numbers which are, in practice, left to the discretion of each user, I personally feel that it is not necessary to revert to this question in Summary No. 4.

Mr. Strauss (in French). — Mr. PRESIDENT, Gentlemen, what I had in mind was that one should not merely talk of an electronic data processing machine which has, and will always have, a low capacity but that one should envisage a capacity which can be extended. We should not use the term « low capacity » as indicating a « permanently low capacity » but a « low capacity capable of subsequent extension ».

Mr. de Fontgalland (in French). — I take the liberty to dwell on this matter.

There are two points in the arguments put forward by Mr. STRAUSS.

As regards the first, I agree that we might say that one may begin with a small electronic data processing machine, and may extend it later. This point is covered by the definition which you have proposed by way of amplification of Summary No. 2.

The second point is that there are small electronic data processing machines in existence. The (*former*) Summary No. 4 tries to define a minimum level of activity. This minimum level becomes fairly low for the very reason that small electronic data processing machines are being manufactured which, by definition, are extensible. But the precise purpose of this Summary is to state that even less important Administrations which, a few years ago, could not envisage the use of an electronic data processing machine because there was no machine smaller than, e.g. the I.B.M. 650, now find on the market complete outfits which, while possessing all the characteristics of an E.D.P.M., are much smaller and therefore suitable for them.

I should like to point out that these two points should not be confused.

Mr. Strauss (in French). — I fully agree, **Mr. DE FONTGALLAND**. We have cleared up this point, and I think that we can therefore leave the text as it is. The Proceedings will show in which sense we have used this term.

The President (in French). — The amendment by **Mr. STRAUSS** is withdrawn.

Mr. Hinds. — I would just like to ask whether the real point is not smaller capacity but smaller costs.

Mr. de Fontgalland (in French). — I believe this amounts to the same thing.

The President (in French). — Would you like to suggest an amendment, **Mr. HINDS**?

Mr. Hinds. — No.

Mr. de Fontgalland (in French). — There now remain two proposals.

First of all, **Mr. HINDS** would like to add a third condition for the use of electronic data processing machines : the introduction of data in machine language at a point as close as possible to the source of the data. I believe that **Mr. HINDS** is mainly thinking of punch cards.

Mr. Hinds. — Either cards or tapes.

Mr. de Fontgalland (in French). — Moreover, **Mr. CECCHI** asks that the two

conditions referred to in the wording of the (former) Summary No. 4 should be dissociated from each other, inasmuch as the first condition : « a minimum level of activity » is, in his view, absolutely indispensable whilst the second condition : « the creation of a suitable system of links » is not, in his view, indispensable. Have I interpreted **Mr. CECCHI**'s thoughts correctly?

Mr. Cecchi (in French). — I do not think that the second condition is less indispensable than the first but I think that both conditions are of different character. The first must be realized prior to deciding on the introduction of an electronic data processing machine. The second is a question of application. Once it has been decided to introduce this system, it is necessary to establish the requisite links, and this is one of the essential conditions to observe.

The notion recurs in the last paragraph of the (former) Summary No. 6 where we say : « ... a very detailed study of all the information flow of the system and a very efficient organisation of the internal links ». This appears to be an important condition when it comes to the practical application, to the concrete realisation of the electronic data processing machine

Mr. de Fontgalland (in French). — **Mr. PRESIDENT** there is, in fact, a difference in importance between the first condition and the second. Moreover, I think, as does **Mr. HINDS**, that the introduction, at the lowest possible level, of data expressed in machine language is highly desirable wherever this is possible. It is, incidentally, not possible in all

cases. It is not a necessary feature, but a desirable one.

I think that we might deal with the different suggestions in the following way. We might divide this Summary into two parts and state, under a first number, the first condition : — a minimum level of activity. We might then, under a second number, state the conditions which are, though not indispensable, highly desirable and often very necessary : on the one hand, the links referred to in the text and, on the other hand, the question raised by Mr. HINDS, viz. the introduction, at the lowest possible level, of data expressed in machine language.

Will this meet with the wish of the delegates ?

The President (in French). — Are you in agreement with this view? We shall divide Summary No. 6 (*formerly No. 4*) into two separate parts which assume the numbers 6 and 7 (*Assent*).

We shall now pass on to *Summary No. 8, formerly Summary No. 7*.

Mr. Schoonjans (in French). — *Draft Summary No. 7 (which now becomes No. 8)* :

7. Electronic data processing machines appear to be suitable for the handling of problems common to several Railway Administrations : common tariffs, exchange of materials, wagon pools, etc.

The President (in French). — The discussion is opened. Are there any remarks?

— *Summary No. 8 (formerly No. 7) is adopted without discussion.*

The President (in French). — We now pass to the *new Summary No. 9 (formerly Summary No. 8 of the Report)*.

Mr. Schoonjans (in French). — *Draft Summary No. 8 (which now becomes No. 9)* :

8. As regards the economic aspects, it appears to be necessary to distinguish between :

- direct savings, compared with present management methods, and
- indirect savings, resulting from improved efficiency of management owing to the supply of more exact and more up-to-date information.

Mr. Sanchez, Argentine State Railways (in Spanish). — I should like to see, in the French text, a better definition of the terms « *rentabilité directe* » (direct savings) and « *rentabilité indirecte* » (indirect savings).

Mr. de Fontgalland (in French). — The terms « *direct* » and « *indirect* » are not used here in the same sense as we use them when talking of direct expenses or indirect expenses, especially in costing calculations. The Summary has been kept as concise as possible.

« *Rentabilité directe* » may be defined as follows. Prior to buying or hiring an electronic data processing machine for a given, well-defined task, this task was performed by punch cards or even by hand. We know exactly the cost of staff and hire charges for the equipment, in the case of punch card systems. If we decide to acquire an electronic data processing machine and let it carry out exactly the same work, we know the time spent on this problem by the machine, and we are able to work out the new

cost price of dealing with the problem by means of an E.D.P.M. We compare the old cost and the new cost. The saving, related to the investments, yields a coefficient, an economic efficiency index. This is what we mean by direct saving, and this is what we have referred to, perhaps in a rather too concise fashion, as « direct savings compared with present management methods ».

Apart from that, there are all the new possibilities offered by these machines, especially as regards the speeds at which the information can be supplied. In certain cases, speed is a considerable factor, for example, in connection with the control of supplies. It is obvious that if one can save even one day in the turn-round of the stock held by a railway system, it is possible to effect savings in respect of all sorts of equipment. But this saving would be very difficult to quantify, especially at the beginning. This is what we understand by « indirect savings ».

Have I answered the question?

Mr. Sanchez (in French). — Perfectly.

The President (in French). — **Mr. Sanchez**, would you like to formulate an amendment?

Mr. Sanchez (in French). — It was merely an explanation.

The President (in French). — Are there any other remarks?

Mr. Laloni, *Permanent Commission of the Association* (in French). — Having heard **Mr. DE FONTGALLAND** who has

given us, with great lucidity, a definition of direct savings — and I congratulate him on that — I must confess that the preoccupations and misgivings of our Argentine colleague are still in my mind, for the following reasons.

Mr. DE FONTGALLAND has given us an admirable definition of direct savings. In my opinion, however, it is very difficult to calculate the difference between the cost of work carried out by the present method, and the cost of the same work carried out by the future method, and thus to calculate the savings which would be realized by the introduction of the new methods.

As regards indirect savings, you have also envisaged advantages which can be translated into monetary terms. Otherwise you would have to say that there are no economic advantages, that there is no other economy, than the advantages of a technical nature, speed of information, accuracy of information, etc. If you are in a position to calculate, to quantify the economic advantages, you can talk of savings but then it is not necessary to make this distinction: you can include these advantages under the heading of general savings.

I would therefore ask you, if you set much store on this distinction, to modify Summary No. 8 and to talk of savings in general, though indicating, at the same time, the sources of these savings.

The President (in French). — I wonder whether we could not say: « primary savings » and « secondary savings ».

A Delegate (in French). — There are primary advantages and secondary advant-

ages. It is the complementary advantages which give rise to the problem.

Mr. Laloni (in French). — If there is a possibility of expressing the direct advantages in monetary terms, we talk of savings.

Mr. Santoro, Italian State Railways (in French). — Mr. PRESIDENT, I agree with Mr. LALONI. We can talk of savings but it is not possible to distinguish between direct and indirect savings. It is mainly a question of the advantages which must be taken into account when the economic studies have been concluded.

I suggest that we simply alter Summary No. 8 as follows :

« As regards the economic aspects, it appears to be necessary to take into account the direct advantages compared with present management methods and the complementary advantages resulting from improved efficiency of management »

This, I believe, would meet with the acceptance of the Spanish and Italian delegation and of the Reporter.

Mr. de Fontgalland (in French). — Mr. PRESIDENT, I do agree that the closer definitions asked for by Mr. LALONI can be of interest. However, when you want to place an order for an electronic data processing machine, you must submit a scheme to the financial departments, and these will insist on a balance sheet. For this purpose, we have tried to explain in the reports how one might assess these economic prospects, or let us say, these savings. This is not easy.

One method which we have suggested

is the following : That is to begin by adopting a well defined priority programme which can be studied in detail, and calculating the direct savings. It seems to me that the term « savings » or « profitableness », as related to direct savings, should be preserved as it really has a strict financial meaning in the accountancy sense.

As regards indirect savings, I would be agreeable to substitute the word « advantages » or « improvement » for « savings » since in fact, in most cases, these advantages could only be expressed in monetary terms when some experience has been gathered.

(The Italian Delegate indicates assent).

Mr. Thomann, Swiss Federal Railways (in French). — Mr. PRESIDENT, Gentlemen, I believe that the main difference between these two points consists in the fact that the first deals with something that can be translated into figures. I am therefore wondering whether one could not add, to this first point, the word « quantifiable », and to call the second point (savings or advantages) « non-quantifiable ». I think the text would become clearer if this distinction were made.

Mr. de Fontgalland (in French). — As far as direct savings are concerned, the mere addition of the word « quantifiable » does not seem to adduce a correspondingly closer definition since savings must always be a matter of calculation; it seems to me that it is very necessary to use figures. As regards the indirect advantages, is it really correct to state that they are not quantifiable?

They can be estimated figures. They are not figures which have a constant value, especially at the outset, but certain Administrations, at least, consider that it is necessary to calculate them.

Let us revert to the case of supplies. If the average period of stock turnover can be reduced by 24 hours — one knows the value of the stock on hand, and one knows that 24 hours represent, say, one sixtieth of the total stock — it is fairly easy to assess the order of magnitude of this saving, compared with the order of magnitude of the expenditure incurred in buying an electronic data processing machine.

I therefore think that, even in the case of indirect advantages, certain quantified estimates must be introduced from the outset. But this is only an estimate, as Mr. LALONI has pointed out; they are not really figures of book-keeping status.

That is why I take the liberty to insist that we should not say that the indirect advantages cannot be evaluated. I am convinced that they can, and should, be evaluated.

The President (in French). — Are we all agreed? Have you got any other suggestions?

Mr. Thomann withdraws his proposal.

Mr. Carlier (in French). — I think, however, Mr. PRESIDENT, that it would be desirable to replace the word «distinguish» by the phrase «take into account». I think that this is a better way of bringing out the idea contained in the paragraph concerned.

With these studies, it is a matter of taking into account several aspects before arriving at a decision, rather than distinguishing between direct and indirect savings.

The President (in French). — Is the Assembly agreed? (*Assent*). Is there any other proposal concerning Summary No. 9?

Mr. Hinds. — Mr. PRESIDENT, I would like to add a third class of advantages to the two which are printed in the Summary, in the following wording :

« ... indirect advantages, resulting from the solution of optimisation problems by methods of operational research »

We have heard Mr. DE FONTGALLAND speak about this application in his opening address this morning.

Mr. UBBE in his report referred to the use of operational research techniques for reducing stocks in the warehouses.

In the summary of proposed applications, it is of interest to note that all the proposals of our hosts, R.E.N.F.E., are of operational research applications.

As far as the direct use of operational research applications is concerned, we have no experience in British Railways, but one of our customers — the Gas Industry — has used the technique of linear programming with an IBM 650 machine for the distribution of coal from colliery to gas works. As a result, the amount they pay us has been reduced by £1 000 per week at least; thus we have suffered from the use of this machine by one of our customers.

The President (in French). — What does Mr. DE FONTGALLAND think?

Mr. de Fontgalland (in French). — I agree with Mr. HINDS that, as we said in the Reports the use of electronic data processing machines will greatly facilitate the solution of tricky problems. This morning, I referred to the example of wagon turn-round, tackled by means of operational research methods. In my opinion, this comes under the heading of indirect advantages. But, in order to draw special attention to these problems of operational research and to the possibilities of solutions offered by electronic data processing machines, we might add, not perhaps a third conclusion, but a sentence at the end of the second because, in my view, this comes under the heading of indirect advantages, saying, for example : « ... indirect advantages resulting from improved efficiency of management owing to the supply of more exact and more up-to-date information, and also as a result of the possibility of solving certain problems by operational research methods » (Mr. HINDS indicates assent).

The President (in French). — Are we all agreed? (*Assent*). The final text of this Summary will be submitted to you to-morrow.

We pass on to Summary No. 9 which now assumes the number 10.

Mr. Schoonjans (in French). — *Draft Summary No. 9 (now No. 10) :*

9. Of necessity, the preliminary studies preceding the installation of an electronic data processing machine take a long time

and are very complex. They call for an efficient organisation and for specially trained personnel. The best way of dealing with this type of studies appears to be the setting up of « Working Teams », consisting of permanent representatives of all the departments concerned with a particular application.

The President (in French). — Does anyone wish to speak on this Summary?

Mr. Langevin, Régie Autonome des Transports Parisiens (in French). — I should like to draw the attention of my colleagues on the problems relating to the utilization of the basic personnel.

At the Paris Transport Board, we have a machine in use during the last two years. We seek to use it for payrolls and time-keeping of staff. At present, numerous clerks are engaged in preparing attendance sheets, timekeeping records and various other necessary forms. Now that we seek to use an E.D.P.M., the same staff must be employed to supply the basic data for the machine. It is therefore very important — and this amounts to a calculation of direct savings — to ascertain the number of working hours required at present without the machine, and those required in the future, with the machine.

I should also like to draw the attention of my colleagues to the risks of errors. At present, with the documents prepared by hand, the errors can be easily detected. In contrast, when the documents are prepared for the machine, the errors are much more difficult to detect.

We have experienced great difficulties in dealing with this time-keeping matter, taking into account for the basic personnel, the number of working hours required and the risks of errors.

We have obtained good results for our road system. But for our railway system, in the present state of the technique, we had to postpone applying the personnel time-keeping matter owing to the multiplicity and complexity of the bonuses and various allowances granted.

Admittedly, we are not exactly dealing with specialized staff, referred to in the Summary; but I believe this is a very important question.

The President (in French). — The discussion continues.

Mr. Langevin (in French). — Mr. PRESIDENT, I think it is difficult to put this into the Summaries. I was simply trying to draw the attention of my colleagues to this question concerning the utilization of the basic personnel, and if my contribution should find its place, in summarized form, in the Proceedings, this will do, and there is no need to change the Summaries.

The President (in French). — Gentlemen, are you agreed? We thus regard Summary No. 10 (formerly No. 9) as adopted in its original form and pass on to Summary No. 11.

Mr. Schoonjans. — *Draft Summary No. 10 (now No. 11) :*

10. It is suggested that the question should again be put on the agenda of a future Congress at a time when the Administrations will have acquired sufficient practical experience in this field.

The President (in French). — The discussion on this point is opened.

Mr. Sanchez (in Spanish). — Without wishing to modify the text, I would suggest that a special committee be set up, even temporarily, to study the question of E.D.P.M.

The President (in French). — The proposal made by Mr. SANCHEZ is very interesting but it is not in keeping with the tradition of the International Railway Congress Association. It is not our practice to set up study committees. There are, however, committees set up by the International Union of Railways, and we could invite one of these committees to take charge of this problem. You can then propose that the question should be considered at the next Congress.

Mr. Schoonjans (in French). — It is perhaps necessary to state that the setting up of a committee is not in accordance with the practice of the International Railway Congress Association. There are other organisations which have permanent organs (committees, etc.); among them, in particular, is the International Union of Railways. The use of E.D.P.M. is a matter which is left to the discretion of each Administration and to which we had perhaps better not commit ourselves too much to-day. Everyone can, on his own, consider the most effective way of action, but I think that it is out of place to suggest the setting up of a study committee which is not in keeping with the practice of Congress.

Mr. Rousseau, International Union of Railways (in French). — In my capacity as representative of the International Union of Railways, I should merely

like to tell our colleague from the Argentine Railways that I shall gladly be at his disposal to give him information on the working methods of the I.R.U. (U.I.C.), and on the possibility of giving him information, which might be of interest to him, on the work already carried out at the I.R.U. by a working party presided, in fact, by Mr. DE FONTGALLAND, Reporter at this Congress.

The President (in French). — Are you agreed, Mr. SANCHEZ? (*Assent*).

Summary No. 11 can therefore be regarded as adopted.

Is there any other question?

Mr. Rousseau (in French). — Yes, on the question as a whole, Mr. PRESIDENT.

Since all these Summaries have been examined very closely, almost word for word, in respect of each point in question, I should like to point out — but the Reporter has no doubt noticed this — that the former Summary No. 4, now divided into Nos. 5 and 6, has not been drafted with its new text. Its division in two points, 5 and 6, calls for the use of new formulas to introduce each of the paragraphs. In this connection, following up the idea put forward by Mr. CECCHI a little while ago, would it not be desirable, when talking of the « minimum level of activity measured in terms of basic data », to say that the economic advantage is subject to a minimum level, and then, when talking of a « system of links », to say something like : « the practical utilisation of electronic data processing machines calls for

the setting up of a system of links ». Personally, I have every confidence in the Reporter to re-draft these two paragraphs.

Mr. de Fontgalland (in French). — As Mr. ROUSSEAU has said, the drafting of the text is not yet absolutely final. Should one say that the minimum level of activity is governed by economic conditions? This is partly true, but technical considerations also come into it. It is certain that one would not use punch cards for a payroll of ten employees. First of all, it would not be economic; but even technically, it would not be an adequate device. This is so obviously true that I am wondering whether it is worth while referring to the economic aspect at all.

The President (in French). — Would you like to formulate an amendment, Mr. ROUSSEAU?

Mr. Rousseau (in French). — No. I have confidence in the Reporter for the new wording.

The President (in French). — Gentlemen, the Summaries are thus going to be re-drafted in accordance with the verbatim reports taken down by the Secretaries. We shall proceed as follows : the Secretaries will re-draft the Summaries, and these will be read out to-morrow morning, at the beginning of the meeting, in the form in which they have been laid down to-day.

Are you agreed? (*Assent*).

Mr. Upmark, Swedish State Railways. — I would like to draw your attention once again to Summary No. 1, first line :

« ... in view of the extreme novelty of the subject concerned » ...

To me something which is already seven years old is not really new. I do not think we should use this wording « extreme novelty » (*extrême nouveauté*).

Mr. Schoonjans (in French). — In order to take Mr. UPMARK's observation into account, we might re-draft the first sentence, and say « Electronic data processing machines are recent machines the scope of which has been fully realized by the railways », and then continue as before : « An increasing number of Administrations ... etc. »

Mr. Upmark. — Something like that would meet with my approval.

The President (in French). — Are you agreed?

Mr. de Fontgalland (in French). — I quite agree — but then — this does not emerge from the replies of the questionnaire.

The President (in French). — But you are agreeable to adopting this re-draft? (*Assent*).

Gentlemen, we have come to the end of to-day's meeting. I suggest that we adjourn until 10.30 a.m. to-morrow when the final text of the Summaries will be read. (*Approval*).

The meeting adjourned at 12.30 p.m.

Meeting of the 1st October 1958.

PRESIDENT : Dr. H. GSCHWIND.

— The meeting opened at 10.30 a.m.

The President (in French). — Gentlemen, I declare the meeting open and call upon Mr. SCHOONJANS, *Principal Secretary*, to read out the Summaries in the form in which they were re-drafted by the Reporters and the Secretaries after our meeting yesterday.

Mr. Schoonjans (in French.) — Gentlemen, before reading out the Summaries, I must express regret that the text is not yet in your hands. There has been a delay at the printers, and we are rather annoyed about it. However, there is unfortunately nothing we can do about it. If you agree, I shall read out, point by point, the new text of the Summaries

as they emerged from the discussions at the meeting yesterday morning.

The President (in French). — Are you agreed? (*Assent*). Thank you.

(*Each Summary is read out in French and English*).

Mr. Schoonjans. — *Summary No. 1 :*

« 1. Electronic data processing machines (E. D. P. M.) are recent machines, the scope of which has been fully realised by the railways. An increasing number of Administrations of varying importance already use E. D. P. M. or are carrying out preliminary studies and are placing orders. However, at the present time the experience so far gained is not sufficient to make it possible to come to final conclusions. »

The President (in French). — Are you agreed on this draft?

Mr. Mukerjee, Ministry of Railways (Railway Board), Government of India and Vice-President. — I would suggest that we omit « fully » and include « realised » only.

The President (in French). — Are you agreed on deleting the word « fully » in the English text? (*Assent*).

Any other observations?

— *Summary No. 1 is adopted.*

Mr. Schoonjans (in French). — In Summary No. 2, a paragraph has been inserted in the original draft which you have in hands. I read out the new Summary No. 2 :

« 2. Electronic data processing machines consist of units which, owing to the use of electronics operate at very high speeds and have a very high capacity; they are able to carry out any calculation or logical operation (comparison) working from a memory programme. The possibility of connecting, in varying number, units carrying out various functions (internal and external stores, input and output organs) give these machines great flexibility and makes it possible to adapt them to a progressive increase in the work.

« They are « machines for the automatic processing of information », and their potentialities are far in excess of those offered by standard punch card equipment. In particular, they permit the application of the so-called management by « exception » or « difference » method to problems comprising a considerable number of data or parameters, so that the machines are well suited to serve as instruments of management and, in particular, as a means of arriving at decisions. »

The President (in French). — Are you agreed on Summary No. 2?

Mr. Hinds. — In the second sentence of the English text, I would prefer the use of the word « store » to « memory ». (*Approved*).

The President (in French). — Any other proposal? If this is not the case, Summary No. 2 is herewith adopted.

We now pass on to Summary No. 3.

Mr. Schoonjans (in French). — The text of Summary No. 3 is largely identical with the original text except that, following the proposal made yesterday, the word « statistics » has been given a different place.

The text now reads as follows :

« 3. Electronic data processing machines thus appear to be suitable for dealing with all the problems arising from the management of a railway system, in particular :

« — control of staff and of supplies and materials;

« — accountancy;

« — costing;

« — budgetary control;

« — user of rolling stock (turnround);

« — statistics;

« — studies of fares and charges;

« — technical and scientific calculations (time table calculations, etc.). »

The President (in French). — The discussion is open on Summary No. 3. Does anyone want to speak?

As nobody wants to speak, we can regard this text as adopted, and now pass on to *Summary No. 4*.

Mr. Schoonjans (in French). — Summary No. 4 is, in fact, the former No. 5, with a few modifications.

« 4. The applications first dealt with by an electronic data processing machine are, in most cases, those already handled

by standard punch card methods. The study of these applications is easier, and economic advantages can be derived from the equipment more rapidly.

In addition, the staff can gradually become familiar with the possibilities of the E. D. P. M. and is in a position to carry out more efficiently the study of complex problems. »

The President (in French). — Are there any proposals to modify Summary No. 4?

— *Summary No. 4 is adopted without modifications.*

Mr. Schoonjans (in French). — The new Summary No. 5 is a modification of the former Summary No. 6. The text now reads as follows :

« 5. The most complete utilisation of the potentialities of electronic data processing machines consists in « centralized management » or « integrated data processing », i.e. the centralized processing of all data contained in the various basic documents in which the activity of the system is reflected, with a view to obtaining from them all the results required for management purposes in all spheres. The electronic data processing machine thus represents a « Management Information Centre », at the disposal of the different departments.

« Several E. D. P. M. of lower capacity decentralized and adapted to specific functions would be capable of dealing with different problems, having regard to the time within which the various data ought to be processed. In this case,

liaisons at managerial level are necessary to exchange and exploit the partially processed results.

« It is important to make the point that such a conception is by no means incompatible with the decentralisation of executive functions which is indispensable in a railway system. Introduction must be gradual and calls, in particular, for a very detailed study of all the information circuits of the system and for a very efficient organisation of the internal links within the Administration. »

The President (in French). — Does anyone want to speak?

Mr. Bonnal, *Madagascar Railways* (in French). — It seems to me that the new draft, with the addition of a second paragraph, is less clear than the original draft inasmuch as, in the original draft, it was clearly apparent that the words « such a conception » in what used to be the second paragraph related to the notion of a management information centre. Now that we have introduced, between the two former paragraphs, a new one referring to de-centralized machines which call for the establishment of liaison, it is no longer clear that « such a conception » relates to a centralized equipment.

The President (in French). — What does Mr. DE FONTGALLAND think?

Mr. de Fontgalland (in French). — It is true that the new draft is not quite as clear as the original draft. It takes into account the very interesting discussion

which we had yesterday and, in particular the proposals by Messrs. STRAUSS and SCHMITZ. I do think that, after all, the latest text is comprehensible.

If we have correctly interpreted the discussion at our meeting yesterday, Mr. SCHMITZ in particular has made a point of stressing the possibility of having several electronic data processing machines instead of a single one, each of the several machines of lower capacity being specialized on one problem. « Specialized on one problem » does not mean geographical decentralisation.

Would Messrs. STRAUSS and SCHMITZ agree? (*Assent*).

The President (in French). — Mr. BONNAL, would you like to formulate a proposal?

Mr. Bonnal. — No.

The President (in French). — I think it is clear. There are two trends : centralisation and de-centralisation.

Mr. Bonnal (in French). — I quite agree with the paragraph that has been added, but the point I want to make is that, in the present draft, it seems that the expression « such a conception » relates to the second paragraph and not to the first. That is why the draft appears to be less clear.

The President (in French). — This entails a certain flexibility.

Mr. de Fontgalland (in French). — In order to remove any difficulty in interpretation in the third paragraph,

we might say : « It is important to make the point that *such conceptions are* by no means incompatible... ». (Mr. BONNAL indicates assent). This would effectively comprise the two ideas as Mr. BONNAL points out.

The President (in French). — Are you agreed, Gentlemen? (*Assent*).

— The third paragraph of Summary No. 5 will thus read as follows :

« It is important to make the point that such conceptions are by no means incompatible with the decentralisation of executive functions which is indispensable in a railway system. Introduction must be gradual and calls, in particular, for a very detailed study of all the information circuits of the system and for a very efficient organisation of the internal links within the Administration. »

The President (in French). — Summary No. 5 is thus adopted, subject to this modification.

We pass on to *Summary No. 6*.

Mr. Schoonjans (in French). — Summary No. 6 is, in fact, the first part of the former Summary No. 4. Yesterday, we agreed to substitute, for Summary No. 4, two new paragraphs with the numbers 6 and 7.

I read out the new Summary No. 6 :

« 6. The use of an E. D. P. M. would appear first of all subordinate to a minimum level of activity measured in terms of basic data. The appearance on the

market of E. D. P. M. of low capacity tends to reduce the minimum level. »

The President (in French). — The discussion is opened.

Mr. Hinds. — I would like to suggest instead of « subordinate to a minimum level of activity » the following :

... « appears to require a certain minimum level of activity » (*Approved*).

The President (in French). — We pass on to Summary No. 7.

Mr. Schoonjans (in French). — *New Summary No. 7 :*

« 7. Also the achievement of the following conditions facilitates the practical use of an E. D. P. M. :

« — the creation of a suitable system of links between the establishments from which the basic data emanate, the E. D. P. M. processing this data and the departments interested in the results;

« — the translation into machine language of the basic data at a point as close as possible to their source. »

The President (in French). — The discussion on Summary No. 7 is opened.

Are you also agreed on the English text? (*Assent*).

Summary No. 7 having been accepted, we pass on to Summary No. 8.

Mr. Schoonjans (in French). — The new Summary No. 8, is the former Summary No. 7, without any modification :

« 8. Electronic data processing machines appear to be suitable for the handling of problems common to several Railway Administrations : common tariffs, exchange of materials, wagon pools, etc. »

The President (in French). — Is the Assembly agreed on this text? (*Assent*).

Summary No. 8 having been adopted, we pass on to Summary No. 9.

Mr. Schoonjans (in French). — Summary No. 9 is a re-draft of the former Summary No. 8, with some modifications proposed at our meeting yesterday :

« 9. As regards the economic aspects it is necessary to take into account :

« — direct savings compared with the present management methods;

« — the indirect savings resulting from improved efficiency of management owing to the supply of more exact and more up to date information and also as a result of the possibility of solving certain problems by operational research. »

The President (in French). — The discussion is open.

Mr. Ubbe. — With regard to the English text, I think it should read « indirect advantages » as we said yesterday instead of « indirect savings ».

The President (in French). — As nobody else wants to speak, Summary No. 9 is adopted, subject to this modification of the English text.

We pass on to Summary No. 10.

Mr. Schoonjans (in French). — Summary No. 10, is, in fact, the former Summary No. 9 without any modification. The same applies to the last Summary No. 11 which is identical with the former Summary No. 10.

Summary No. 10 :

« 10. Of necessity the preliminary studies preceding the installations of an electronic data processing machine take a long time and are very complex. They call for an efficient organisation and for specially trained personnel. The best way of dealing with this type of studies appears, to be the setting up of « Working Teams », consisting of permanent representatives of all the departments concerned with a particular application. »

The President (in French). — Are we agreed on this text?

— *Adopted.*

Mr. Schoonjans (in French). — *Summary No. 11 :*

« 11. It is suggested that the question should again be put on the agenda of a future Congress at a time when the Administrations will have acquired sufficient practical experience in this field. »

The President (in French). — Are we agreed?

— *Adopted.*

Gentlemen, we have arrived at the end of our debates. The Summaries relating to Question 7 are thus finally formulated.

Before closing the meeting, I have great

pleasure in thanking, on behalf of all of us, the two Reporters who have accomplished a very useful task. The Summaries formulated by them have, in principle, met with your approval.

I also have to thank those among you who have taken part in moulding these Summaries.

I also express my thanks to the office staff and Secretaries who have rendered us good services.

Now, it is up to the specialists in our Administrations to go ahead and derive

their inspiration from our conclusions. In the hope that they will everywhere find the necessary understanding and support, and that all the Administrations will be able to contribute fruitful and productive solutions when the question with which we have dealt is again submitted to a future Congress, I declare the meeting closed.

The next meeting will take place tomorrow, Thursday, 2nd October, at 9.30 a.m. for the discussion of Question 8.

— The meeting ended at 11 a.m.

DISCUSSION AT THE PLENARY MEETING.

Meeting of the 3rd October 1958.

PRESIDENT : Sr. D. AGUSTÍN PLANA.

GENERAL SECRETARIES : MESSRS. P. GHILAIN AND J. PÉREZ POZUELO.

The President (in French). — Gentlemen, we pass on to the examination of the Summaries of Question 7.

Mr. Ghilain, General Secretary, submits to the Assembly the summaries of Question 7 which were published in Nos. 2 and 3 of the Daily Congress Journal.

(The reading of these Summaries does not give rise to any objection).

The President (in French). — The Summaries relating to Question 7 can therefore be regarded as ratified.

SUMMARIES.

« 1. Electronic data processing machines (E. D. P. M.) are recent machines, the scope of which has been realised by the railways. An increasing number of Administrations of varying importance already use E. D. P. M. or are carrying out preliminary studies and are placing orders. However, at the present time the experience so far gained is not sufficient to make it possible to come to final conclusions.

« 2. Electronic data processing machines consist of units which, owing

« to the use of electronics operate at
« very high speeds and have a very high
« capacity; they are able to carry out
« any calculation or logical operation
« (comparison) working from a stored
« programme. The possibility of connecting, in varying number, units carrying out various functions (internal and external stores, input and output organs) give these machines great flexibility and makes it possible to adapt them to a progressive increase in the work.

« They are « machines for the automatic processing of information », and « their potentialities are far in excess of those offered by standard punch card equipment. In particular, they permit the application of the so-called « management by « exception » or « difference » method to problems comprising a considerable number of data or parameters, so that the machines are well suited to serve as instruments of management and, in particular, as a means of arriving at decisions.

« 3. Electronic data processing machines thus appear to be suitable for dealing with all the problems arising from the management of a railway system, in particular :

« — control of staff and of supplies
« and materials;
« — accountancy;
« — costing;
« — budgetary control;
« — user of rolling stock (turn-
« round);
« — statistics;
« — studies of fares and charges;
« — technical and scientific calcula-
« tions (time table calculations, etc.).

« 4. The applications first dealt with
« by an electronic data processing ma-
« chine are, in most cases, those already
« handled by standard punch card me-
« thods. The study of these applica-
« tions is easier, and economic advant-
« ages can be derived from the equip-
« ment more rapidly. In addition, the
« staff can gradually become familiar
« with the possibilities of the E. D. P. M.
« and is in a position to carry out more
« efficiently the study of complex
« problems.

« 5. The most complete utilisation of
« the potentialities of electronic data
« processing machines consists in « cen-
« tralized management » or « integrated
« data processing », i.e. the centralized
« processing of all data contained in the
« various basic documents in which the
« activity of the system is reflected, with
« a view to obtaining from them all the
« results required for management pur-
« poses in all spheres. The electronic
« data processing machine thus repre-
« sents a « Management Information
« Centre », at the disposal of the dif-
« ferent departments.

« Several E. D. P. M. of lower capa-
« city decentralized and adapted to spe-
« cific functions would be capable of
« dealing with different problems, hav-
« ing regard to the time within which
« the various data ought to be processed.
« In this case, liaisons at managerial
« level are necessary to exchange and
« exploit the partially processed results.

« It is important to make the point
« that such conceptions are by no means
« incompatible with the decentralisation
« of executive functions which is indis-
« pensable in a railway system. Intro-
« duction must be gradual and calls, in
« particular, for a very detailed study
« of all the information circuits of the
« system and for a very efficient orga-
« nisation of the internal links within
« the Administration.

« 6. The use of an E. D. P. M. ap-
« pears primarily to require a minimum
« level of activity measured in terms of
« basic data. The appearance on the
« market of E. D. P. M. of low capa-
« city tends to reduce the minimum
« level.

« 7. Also the achievement of the fol-
« lowing conditions facilitates the prac-
« tical use of an E. D. P. M.:

« — the creation of a suitable system
« of links between the establishments
« from which the basic data emanate,
« the E. D. P. M. processing this data
« and the departments interested in the
« results;

« — the translation into machine lan-
« guage of the basic data at a point as
« close as possible to their source.

« 8. Electronic data processing machines appear to be suitable for the handling of problems common to several Railway Administrations : common tariffs, exchange of materials, wagon pools, etc.

« 9. As regards the economic aspects it is necessary to take into account :

« — direct savings compared with the present management methods;

« — the indirect advantages resulting from improved efficiency of management owing to the supply of more exact and more up to date information and also as a result of the possibility of solving certain problems by operational research.

« 10. Of necessity the preliminary studies preceding the installations of an electronic data processing machine take a long time and are very complex. They call for an efficient organisation and for specially trained personnel. The best way of dealing with this type of studies appears to be the setting up of « Working Teams », consisting of permanent representatives of all the departments concerned with a particular application.

« 11. It is suggested that the question should again be put on the agenda of a future Congress at a time when the Administrations will have acquired sufficient practical experience in this field. »

QUESTION 8.

Financing and conserving railway properties and assets.

Study and comparison for limited companies, partially state-owned companies and State Railways, of the financial means used for the normal renewal of installations and rolling stock.

Forms of amortization and renewal, taking into account for the latter, the slow or speedy depreciation of the currency,

Preliminary documents.

Report (America [North and South], Australia [Commonwealth of], Austria, Burma, Ceylon, Egypt, India, Irak, Iran, Republic of Ireland, Japan, Malaysia, New Zealand, Norway, Pakistan, South Africa, Sudan, Sweden, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland and dependent overseas territories), by V. FELDER. (See *Bulletin* for May 1958, p. 725.)

Cambodia, Czechoslovakia, Denmark, Ethiopia, Finland, France and French Union, Western Germany, Greece, Hungary, Indonesia, Italy, Lebanon, Luxembourg, Netherlands, Poland, Portugal and overseas territories, Rumania, Siam, Spain, Switzerland, Syria, Turkey, Viet-Nam and Yugoslavia), by W. KELLER. (See *Bulletin* for March 1958, p. 361.)

Special Report, by W. KELLER. (See *Bulletin* for September 1958, p. 1422.)

DISCUSSION BY THE SECTION.

Meeting of the 2nd October 1958.

PRESIDENT : DR. H. GSCHWIND.

— The meeting began at 9.30 a.m.

The President (in French). — Gentlemen, we now meet to discuss Question 8.

Sociologists tell us we are living through a second industrial revolution. Recent scientific discoveries have opened the door to prodigious technical progress.

On the one hand, the new installations have a much greater productivity than the old ones, and on the other, this same progress means that the capital invested depreciates at a hitherto unknown rate, and consequently calls for speeded up modernisation of the existing installations. The rise in wages and reduction in working

hours which are the other side of this evolution are accompanied by a depreciation of monetary values. The railways having lost their transport monopoly, are caught up in this machinery without having the same liberty as private undertakings.

It is true that the new techniques open the door to vast possibilities. We are thinking of automation. But the realisation of this progress is braked by the fact that we have not the necessary financial means. The financing and conservation of the assets and capital of the railways is therefore a problem of vital importance.

The reports by Mr. FELDER and Mr. KELLER with their Summaries lead us to the heart of the problem.

I will now call upon the two Reporters, and first of all, on Mr. KELLER, the *Special Reporter*.

Mr. Keller, *Special Reporter*. (in French) — Mr. PRESIDENT, Gentlemen, first of all, — and I think I may assume that I am also speaking for Mr. FELDER — I would like to thank all the Administrations represented here for the great trouble they took to answer the questionnaire which we sent them.

Mr. FELDER and myself appreciate that it was not an easy matter to answer all the questions asked and to supply the figures asked for.

It would also be very understandable if one or other of the experts who drew up the replies to the questionnaire felt a certain disappointment on finding that in the reports themselves very few of the figures they gave have been reproduced. The Reporters are the first to regret this.

However, the replies received showed

that there was such a variety in the accountancy methods used and in the way the accounts were prepared that a mere reproduction of the figures given by the Administrations would certainly have led to erroneous conclusions.

For these reasons, it was necessary to restrict the reports to questions of principle and the fundamental aspects.

Moreover, in the case of such a debatable problem as that which forms the subject of our reports, such a limitation is an advantage rather than a disadvantage.

Reduced to the essentials, there are two questions to which the reports endeavoured to find an answer :

The first : how, in accordance with the theory and regulations of a sound commercial management are the assets and capital to be conserved, especially during a period when the currency is continually depreciating?

The second : do the Railway Administrations follow these general rules, and if not, why not?

The replies to these two questions can be summed up briefly as follows :

Both in theory and in commercial practice, it is the sinking funds which should above all, apart from the creation of reserves, guarantee the conservation of the assets and capital. By means of the sinking funds, the undertaking recovers from the receipts from its products a sum equal to the depreciation of its installations owing to wear, technical progress and changing markets. As long as the currency retains its value, it is sufficient to spread the cost of the installations over their useful life. At the end of this period, the undertaking can use

the money in the sinking fund either to pay back the capital or to purchase a new installation of the same value.

During a period of currency depreciation, like that in which we are all living more or less, a sinking fund based on the cost price is no longer sufficient. The money in it will pay back the nominal capital when the installation is taken out of service but will be insufficient to buy a new one. In order for the assets to be conserved in spite of currency depreciation, the sinking fund must be based on the renewal values.

Although a sinking fund based on replacement values will not be allowed by the revenue authorities in all countries, it is found as a general rule that industrial undertakings amortise their installations in such a way that they conserve their assets at all times by autofinance. In general, they go even further and even finance increased capacity from their own resources.

In good years, if industrial enterprises can have such extensive sinking funds, it is because they are free to fix their selling prices in such a way that they allow a sufficient margin to cover the amortisation and constitute reserves. In a time of capital depreciation, this means that the prices of the products are kept in line with the depreciation, i.e. increase.

To the second question, that of knowing whether the railways follow commercial theory and practice, the reply must be a negative one. The great majority of the Administrations have inadequate sinking funds. This results in insufficient and delayed replacement of the installations. The great majority

of the Administrations report considerable arrears in renewal and modernisation of both their installations and rolling stock.

To the subsidiary question : why are the railway sinking funds inadequate? the reply must be that it is because most of the railways are in deficit.

There are indeed differences in form and methods between the sinking funds of the railways and those of industrial concerns; but this is not the reason, certainly not the decisive reason for the inadequacy of the railway sinking funds. If the railway Administrations budgets showed a profit, the accountancy methods used would certainly not prevent the railways from increasing their sinking funds. From the experience of most the Administrations for some years past, it would appear that as long as the railways have a deficit, it is impossible to renew the installations on the scale that operating requirements make desirable. Renewal depends rather upon the funds which the State puts at the disposal of the railways, and as the financial position of the States is in general not much better than that of the railways, such funds are bound to be inadequate.

It would appear that there is only one solution to get out of this situation. That is to make the railways profitable, i.e. allow them to charge prices which will cover their costs, including adequate sinking funds. But this is not possible unless to begin with the railways are freed or compensated for the burdens laid upon by the State in favour of the general economy, and until a reasonable co-ordination of transport has been achieved which puts the railway on equal terms with competing methods of transport.

That, Mr. PRESIDENT and Gentlemen, sums up in a few words the most important facts and statements which have led to the summaries formulated in the Special Report.

The President (in French). — Thank you very much. Has Mr. FELDER any comments to add?

Mr. Felder, Reporter (in French). — No, thank you, Mr. PRESIDENT.

The President (in French). — In that case we will go on to the general discussion.

Tradition requires us to discuss more particularly the Summaries of the Special Report.

In view of the importance of this Question, above all in view of the fact that the problem to be discussed is closely linked up with other questions of general interest and might give rise to a discussion on the methods used, there is some danger of our discussions getting too involved. I am sure, you will agree with me, therefore, that we do not want too long a controversy on the actual methods used, nor a discussion on the general transport policy.

Will Mr. SCHOONJANS, Principal Secretary, be good enough to read Summary No. 1.

Mr. Schoonjans, Principal Secretary (in French). — As you know, the Summaries were published in the *Bulletin of the International Railway Congress Association*, September 1958, pages 1428 and 1429 of the English edition.

Mr. Laloni, Permanent Commission of the Association (in French). — Mr. PRESIDENT, Gentlemen, before we begin to discuss the Reporter's Summaries, I would like to say a few words in general. The working instructions for the Sections and the recommendations which the PRESIDENT has just reminded us of stipulate that before discussing the final summaries put forward by the Reporters, there should be a general examination of the question to clear our ideas. If you are agreeable, Mr. PRESIDENT, Gentlemen, I should like, before we begin to discuss the reports and final Summaries formulated by Mr. KELLER and Mr. FELDER, whom I congratulate upon the clarity with which they have drawn up the Special Report, to make a few general remarks about the question with which we are concerned.

First of all, I think that we are all willing to admit that for most railway Administrations, the condition of the fixed installations and rolling stock does not correspond to technical progress and traffic requirements, in view of the great arrears there are as regards renewal and modernisation. Although there were already such arrears before the War on several Railways, they have increased enormously as a result of the war and the upsets of the post war period and the currency depreciation.

But, my dear Colleagues, this is not exclusively a railway problem; it is to be found likewise in public industrial undertakings, as well as certain private industries subsidised by the State and subjected by the latter to accountancy and financial controls. In many such undertakings, there is no autofinance for the renewal, amortisation or modernisation of the

investments. Autofinance is not possible, as the selling prices do not cover all the working costs, amongst which there should be first of all a sinking fund based on the economic life and replacement value of the different investments.

We have only to travel over the lines of most of the European countries to see the present condition of the fixed installations and rolling stock.

The operating receipts should cover not only amortisation and renewal, but also make it possible to meet the demands for modernisation imposed by the phenomena of ageing.

The governments, however, driven by reasons of financial and national policy and the needs of the State budget, intervene to reduce the deficits of the Railways in deficit and force them to suppress or compress the budget provisions relating to amortisation and renewals.

I heartily subscribe to the expression used by the Reporter when he says that the amount the State gives the railways to cover their deficit is too much to let them die and too little to let them live (*Laughter*).

The operating receipts together with the sums allocated by the State to cover the deficit should, in my opinion, be sufficient for the undertaking to autofinance the sinking fund and renewals. The receipts should be integrated in the sense that the railway should be compensated or freed completely not only from the social charges but from all the other charges which have nothing to do with the working.

The equilibrium of the railway budgets, on the lines of the budgets of private industrial and commercial undertakings

is the condition *sine qua non* for making a study of the co-ordination of the different methods of transport.

Mr. PRESIDENT, Gentlemen, I think that together with these facts and considerations we should express the wish that the Railway Administrations should be in a position to meet the whole of the operating costs in order to be able to conserve their assets and their capital.

The President (in French). — Does anyone else wish to say anything in these general discussions?

Mr. Cottier, *Central Office, International Railway Transport* (in French). — Mr. PRESIDENT, Gentlemen, may a Delegate who has been closely concerned for more than twenty-five years with extremely complex problems of amortisation say a few words.

First of all, I must congratulate the Permanent Commission of the Association for having included in the agenda of the Congress a study of this problem which is of such capital importance for the rationalisation of the railways.

Then I would like to join with Mr. LALONI in thanking the Reporters who have carried out their work in a truly model fashion. These reports will be classical documents and can be used for future studies, as there are still studies to be made in this field.

My object in joining in the general discussion is to recommend that you might consider whether it would not be possible to include another very important point in the Summaries.

Comparisons have been made between normal sinking funds and reasonable

sinking funds, between the railways and industrial undertakings. Perhaps it would have been useful also to deal with the sinking fund practice followed by other transport undertakings than the railway, for example the road services, or river services; this perhaps would make it possible to make comparison with the object of studying regulated competition.

In my opinion, a very important point distinguishes the railway sinking fund methods from the system applied by industrial undertakings. This is the obligation to operate, which is imposed on the railways as a public service by the States. The reports mention this when they state that the railway must be kept in existence, which is not the case for many industries, the working of which can be suppressed.

As a result of this fundamental principle, it is obvious that the amortisation system must be adapted in such a way that in every case the whole value of the first capital investment is covered by the sinking fund. But the depreciation in the purchasing power of the currency must obviously also be taken into account. I think, indeed I have read that this is the case in one country, that it should be made obligatory to set up first of all industrial sinking funds, in any case to cover the first capital investment, and then an additional sinking fund to cover the depreciation in the value of the currency, in any case till the original capacity is covered. As soon as increased capacity is achieved, the question arises of knowing whether an obligatory sinking fund can be imposed. An additional optional sinking fund is to be recommended in

such cases. But in my opinion, it would be a very good thing if we could mention in one of the Summaries this fundamental difference between industry and the railways, who have to continue to operate, who have an obligation to carry, which is one of the reasons why industrial sinking funds should be increased.

The President (in French). — The general discussion continues.

Mr. Elefteriadès, *Damas-Hama Railway and extensions* (in French). — Mr. PRESIDENT, the great variety of methods used shows sufficiently clearly that the ideal solution has not yet been found. Naturally, we all wish that more light could be thrown on the question. But it seems to me that our actions would remain insufficiently fruitful if we content ourselves with recommending the adoption of measures which we know in advance cannot be followed in practice. What we all deplore, has been going on for a long time, will continue to go on and — it is to be feared — will continue to be done until by means of a more accurate analysis taking all the judicial factors into account, a more appropriate solution is put forward.

For my part, during the discussions on the general Summaries, I will venture put forward such a solution, depending on improving the juridical obligations in regard to amortisation, in particular the repayment of capital.

Our Reporters are always speaking of conserving the assets and repaying the capital. It would appear that these two ideas are to be blended, because the capital is amalgamated into the assets.

In amortising the assets, the repayment of the capital is necessarily provided for.

So as not to prolong the discussions, I will return to this point later on.

Mr. Wansink, *Netherlands Railways* (in French). — Mr. PRESIDENT, I would like to join in the discussions and make a few remarks of a general nature because I have the pleasure, if I may dare to say so, of representing a joint stock company which rigorously uses the system of amortisation based on the replacement value.

I do not wish to begin my statement without thanking and congratulating the Reporters for their very complete report, which makes such a good foundation for our discussions.

My first remark has to do with the idea of conserving the assets and the value of the replacement. My thesis is as follows : if the theory of the value of the replacement is applied in the strict meaning of the word — which is the only possible one — the condition of the railway cannot be maintained at the requisite level.

We all know that if the sinking fund has been based on the replacement value, it is only in the most favourable cases that it is possible to replace old things : a 1910 wagon, a 1920 coach or an ancient steam locomotive. These are always replaced by more complicated and more costly machines. If the replacement value of a 1910 wagon is now let us say 12 000 florins the cost of a new wagon is 18 000 florins. There is therefore a shortage of 6 000 florins to keep the stock in a proper state, in a competitive state.

It seems to me that the report — and this is my second point — uses the term

autofinancing in two different ways. First of all, according to the theory of the replacement value, in a strict sense, which in my opinion is the only possible sense; autofinancing in this sense is therefore amortisation intended to replace worn objects exactly.

But there is also in the report, when industry is being dealt with, a more extensive meaning given to autofinancing; this is the idea of autofinancing as used in industry. This means that the business is run in such a way that funds are available not only for replacements but also for modernisation and even for part of the expansion of the undertaking.

Modern installations and their expansion require a great deal more capital than the application of the system of amortisation according to the replacement value given to the undertaking.

To take the Netherlands Railways as an example, during the last three years they have been obliged to borrow sums almost equal in value to the amount of the sinking fund based on replacement value, with the object of keeping their stocks as far as possible in a condition allowing them to meet competition.

This policy of financing expansion and part of the renewals by means of loans leads to excessive financial charges. We cannot go on indefinitely in this way, because this policy results in a balance sheet on which borrowed capital is shown as much greater than the capital invested in the shares.

What we need, therefore, is not only to « gain » a sinking fund — if such a word can be used in this connection because it is not really a gain properly speaking — but to harvest our funds

beyond the actual amortisation, because such funds are needed to meet the exigencies of modernisation and expansion.

Modern railway technique needs a great deal of capital. On the Netherlands Railways, during the last fifteen years, the percentage of costs under the heading labour has fallen from 60 to 45 %.

I think therefore that it would be a good thing to express this rather more clearly for the benefit of all those who will read our Summaries.

We could return to this point when discussing Summary No. 5.

I will end, Mr. PRESIDENT, by remarking that we are not the only ones to make such a complaint and objections. I can quote an extract from a statement made not by a railwayman but by the Chairman of the Association of Air Transport Undertakings of the United States before a Committee of the American Senate dealing with the present transport crisis in the United States. Mr. TIPTON spoke not only of air transport but also of the railways and he said a propos the speeded up amortisation of the railway equipment because of the competition with other methods of transport : « The more this competition increases, the more it is essential that the management of the railways be at liberty to take all the necessary financial measures to improve the stock and the services in order to maintain and improve their competitive power and in consequence the service offered the public. It is certain that a realistic amortisation policy, both from the financial point of view and the technological view point is essential for healthy development .»

The President (in French). — Mr. WANSINK has touched upon a very important question. I think autofinance raises two problems. First of all, the application or the system of replacement value to an outdated installation or to an up-to-date installation, and then the problem of knowing just how far the expansion of the undertaking can be financed by autofinancing.

Mr. Houlez, *French National Railways* (in French). — As Mr. KELLER has pointed out in his report, the Railways use two methods of amortisation : the classic method for an annual sinking fund allocation for renewals, and the method, special to certain Railways, of the direct allocation of funds for renewal.

To decide which of these methods is the best, it seems to me essential to make a distinction between movable and fixed assets.

The classic methods requires a distinction to be made between maintenance and renewal or capital investment. It has, it appears, been specially designed for movable assets where such a distinction is immediately apparent. Its application to fixed assets appears to me much less convincing. With such assets, in effect, the distinction between maintenance and renewal is most often very difficult. In the case of railways, it is only possible for a certain very limited number of things : renewals of rails, sleepers and ballast. For everything else, there is rarely complete suppression and reconstruction, but repairs of varying degrees, accompanied perhaps by part alterations.

This special feature of the fixed installations involves two major drawbacks in

applying the classic method. The first is that it is impossible to decide except in a very arbitrary way if a given work is to be considered as maintenance attributable to the operating account or renewal attributable to the capital account. The second is that the idea of the death of a fixed component and therefore of its length of life are extremely vague which makes it impossible to fix their amortisation period rationally.

The classic method can therefore only lead to very uncertain results in the case of the fixed assets. This defect can be considered as a minor one in the case of ordinary undertakings whose fixed assets are generally less compared with their moveable assets. It is on the contrary of major importance for undertakings whose fixed assets exceed their moveable assets, and in particular for railways.

It would therefore seem advisable to stipulate that the method of direct charging of renewal funds be used in the case of the fixed assets. This moreover is practically the classic method on the S.N.C.F. in the case of permanent way renewal work.

The risk of falsifying the results in the sense of making them appear better than they are when the technical programmes for renewals are insufficient is certainly no greater than with the classic method. Experience shows, indeed, that the Public Authorities do not hesitate to prescribe a reduction in the annual renewal sums any more than a reduction in the programme of works. Perhaps, they are even inclined to show greater reluctance in the latter case, because the serious technical consequences of such reductions are more directly apparent.

Mr. Cecchi, Italian State Railways (in French). — Mr. PRESIDENT, Gentlemen, in the Summaries of the Report I think there are two points that deserve consideration in the general discussion.

In the final Summary, it is stated that we should «ask for rates which will cover the costs, i.e. which will make it possible to conserve the assets and capital.»

Now, it seems to me that this Summary, taken by itself, apart from the others, might give the impression that we are ignoring the fact that in a situation which is no longer an absolute monopoly a limit is fixed to railway tariffs. Consequently, it is not sufficient to ask for rates which will cover the total cost as at the present time; it should be made clear that it is a question of asking for rates which will cover the real cost after freeing or compensating the railways for the public and social charges they have to pay which have nothing to do with the actual operating. In other words, liberation from abnormal charges or compensation for such charges must be considered as a preliminary question. If this is not taken into account, we might find ourselves faced with insurmountable difficulties in fixing the rates at a reasonable level.

As regards liberation from abnormal charges, though we need not go into details of all the headings under which the railways should be compensated, we should however mention one of them that should be specially taken into account here as it is inherent in the question with which we are dealing : these are the charges actually due to the fact that there are arrears in renewals.

To the extent that such arrears are precisely the consequence of political and social charges imposed upon the railway and because of their effects upon the deficit, this heading must be included amongst the abnormal charges for which the railway must be compensated in order to obtain the proper cost of the railway services to be covered by the transport rates.

Finally, I would like to say a few words about the question of the amortisation methods which have been mentioned.

The amortisation method based on the replacement value, when it has been used since the original capital investment results in the formation of a fund which can be deposited in the bank or invested in public securities, etc. In such a case the undertaking profits by the interest of this fund. But the fund can also be invested in new capital works. In this case, there is no actual « active » interest, but the advantage of not having to charge up the « passive » interest on loans which would otherwise have been made in order to finance the new work.

In both cases, the existence of a large amortisation fund results in relieving the operating account and the cost of the undertaking, and this is a further difference between the position when there is such a fund or when no such fund has been set up.

It is therefore not entirely true to say that the real cost of renewal in the case of undertakings that have a certain equilibrium between their old and new capital investments more or less corresponds to the annual sums needed for the amortisation purposes calculated on the replacement value. In effect, between the

real cost of the renewals, to be booked to the operating account if there is no amortisation fund, and the charges which the operating account will have to carry if large amortisation funds are available, there is a difference which is measured by the interest on the amortisation fund which has been set up or should have been set up. Moreover when there is a certain balance between the new and old capital investments, there are already arrears in renewal if no amortisation fund has been set up, and such arrears have a definite cost which can be accurately measured by the interest on the non-existent amortisation fund.

Mr. Sjöberg, Swedish State Railways. — Mr. PRESIDENT, I have a few remarks to make on this question, mainly concerning what we ourselves, as railwaymen, can do in this matter.

The reports of Messrs. KELLER and FELDER deal with the methods of the conservation of the assets and capital belonging to the railways. The aspects chosen by discussing this problem seem to be mainly retrospective, and, therefore, necessarily static. We cannot, however, conserve all the investments or productive capacity. We have now, for example, slack lines, small stations etc. where the investment seems obsolete through the rapid development during recent years of road motor traffic, air traffic etc. The railways have not been allowed to adapt themselves to the changes that have taken place in the economic life of the country during the last decades.

The problem is therefore, to conserve for the future what really is worth conserving, and to delete, as far as possible and

as soon as possible, what is not worth conserving, and where the capital and its earning capacity is already lost. Thus, the real problem is not retrospective but forward-looking.

As a complement to the very able reports of Messrs. KELLER and FELDER, it should be interesting to have a study of the capital-allocating policies of our railways on plant, equipment and development. I think that capital-allocating is one of our most important managerial problems to-day. We all seek to allocate our available funds to an optimal use.

I think, however, that our capital-budgeting methods could be improved; they depend too largely on intuition.

We still have a big future for the railways if we do the right thing as regards investments.

The President (in French). — Does anyone else wish to say anything?

We can therefore close the general discussion. When amendments are proposed and suggestions justified, we will naturally discuss each particular point of view.

Mr. Meyer, Délégué aux Questions économiques du Département Fédéral des Postes et des Chemins de fer, Suisse (in French). — First of all, I would like to go back to the very interesting comment made by Mr. WANSINK and also touch upon the problem raised by Mr. CECCHI.

Mr. WANSINK expressed his doubts about the formula : industrial amortisation according to the value of the replacement, and I think he is justified.

In effect, in practice it may even be impossible to amortise according to the

replacement value. As Mr. WANSINK said, things are never replaced by the same things. There are always improvements and extensions, but in principle improvements and extensions should be financed not from the industrial amortisation fund but by new capital.

It is understandable that Mr. WANSINK has some doubts about such a policy. In many countries, the State has put the railways on a sounder basis by supporting part of the capital costs and now, through this policy, the railways are once again going to embark on an epoch in which debts will form a heavy burden.

That is why I feel Mr. WANSINK's fears are justified.

However, it appears to be that they might be banished under three conditions. These are :

1) the railway, as far as possible, must limit itself to profitable investments. Certainly all the railway Administrations who have a really up to date management insist upon this at the present time.

2) the railway must try to establish tariffs covering their costs. This is also a very important matter. The policy of making the railway subsidize by its tariffs the general economy has come to an end under the conditions of competition which we all suffer from in the field of transport;

3) and thirdly — and here I touch upon the point raised by Mr. CECCHI — the State must compensate the railway for the charges which it really has to bear in the interests of the community. These costs, these charges carried by the railway in the interest of the community should not put the railway accounts in deficit.

In Switzerland, in a recent law on the Railways which came into force at the end of last June, we have tried to solve this problem of compensating the railway for the charges borne in the interest of the community. I cannot and do not want to go into details about this question; it is a fairly complex one. But I would like to repeat once more that with these three conditions — that the investments are profitable, that the State allows the railway to have a tariff covering the costs, and that the State compensates the railway for the charges about which I have just spoken — this policy of expansion financed by loans does not seem so very dangerous to me.

The President (in French). — I will add one word to what Mr. MEYER has just said. In a time of inflation, new debts are not quite so dangerous as in a time of deflation. At least one of the advantages of inflation is that it materially reduces the debts.

Mr. Mukerjee, Ministry of Railways (Railway Board), Government of India, and Vice President. — Mr. CHAIRMAN, first of all, I must apologise to the reporters because the questionnaire from Indian Railways was not completed and sent in. I must also add my thanks to those of the other speakers for the very valuable work they have done.

It may be of interest if I give a brief outline of what we do on Indian Railways regarding this question, and if you will permit me, therefore, I would like to say a few words on this question; it may help in clarifying the problem which we face in India.

The expenditure on railways in India, other than ordinary working expenditure, is made up from the following charges :

Interest on Loan Capital;

Contribution to Development Funds; from surplus.

Contribution to Open Line Works — Revenue; (Works costing Rs. 2 500 each or less and works relating to operating improvements costing not more than Rs. 300 000 each but the return on which is less than 5 %).

Depreciation to Reserve Fund.

The previous practice up to the year 1935 regarding contribution to Depreciation Fund was to put in an amount every year on the basis of assumed life prescribed for each class of asset. With this method, we found it extremely complicated to work out the figures that had to be put into the Depreciation Fund, as naturally the life of various assets was different. So, we decided that the Depreciation Reserve Fund be calculated at an average rate of 1/60th of the total capital at charge; this fraction being the nearest simple fraction calculated to give the results approximately equal to a figure worked out on the basis of the complicated procedure followed previously.

Indian Railways are Government Railways, and we pay dividend on the capital at charge. I reckon that this problem, we are discussing has two aspects really; one for Government railways, and one for private companies, because we are told by countries where private railways operate that these private railways have to pay interest to their shareholders, and themselves pay taxes to the Government, which Government railways do not pay.

Our capital at charge was Rs. 900 crores in 1954-55, i.e. roughly £ 800 millions. In view of developments and expansions and because of the fact that the price of replacement of assets like locomotives, including diesels, etc. have increased, we shall have to borrow additional capital which is obtained from the Government. In recent years, i.e. at the end of 1958-59 therefore the capital at charge has increased from £ 800 millions to £ 1 200 millions. This would mean that our contribution in the shape of dividend would increase and our withdrawals from the Depreciation Fund as well as our contribution to the Depreciation Fund would have to be increased.

Then there are other factors — for instance, we had used our wagons, locomotives and rolling stock for more that we do now. We have to change, to modernise, in order to carry the traffic, and all this tends to increase our costs both from capital and Depreciation Reserve Fund.

The problem we are facing now is that we are using up a great deal of the Depreciation Reserve Fund. If we are going to contribute to the Fund in the same ratio as heretofore, it would mean that in future our balances in the Depreciation Reserve Fund would be greatly reduced.

At the present time our Railways are working with a surplus. In a few years time, in view of much larger increase in capital and of the modernising programme on which we have embarked, the payments on account of dividends on capital at charge and the contribution to the Depreciation Fund would naturally increase. This may have some effect on the available surplus.

I mention this because I feel this problem is a difficult one, and it is also tied up with other considerations. Railways cannot tear up lines, or cancel services as private companies or other concerns can, so that the problem is not only to be tackled by the Railways, but also must receive attention by the Governments.

Solutions to this problem will, of course, differ between one country and another, and indeed will differ as between private and Government railways.

The President (in French). — Gentlemen, if we are to get through our work and get the Summaries adopted, we must begin to discuss them.

Have you still any ideas to discuss which do not come into the points to be dealt with in connection with the Summaries?

Mr. Vrebos, Ministry of Communications, Belgium (in French). — **Mr. PRESIDENT**, just now you made it quite clear that you understood that in touching upon the problem of renewals, we were dealing with a very delicate problem, a very uncertain territory. You tried to get off at a tangent by suggesting that we at once begin to examine the resolutions suggested by the two Reporters, and **Mr. LALONI** has brought you back into the circle where we might go round and round for a very long time.

So, I will again try and get off at a tangent, as you must certainly be getting impatient, and make the precision that the problem of amortisation can be stated in three planes : the accountancy plane,

the plane of standardised railway accounts, and the plane of the general organisation of transport.

As regards the first plane, a standard accountancy plan, I think that the Reporters, who are going to have three days in which to think over the question, may have something to suggest. In reality, the problem of amortisation is so very different from one railway to another, that attempts have already been made to solve it in other ways, in particular by a standard accountancy plan and perhaps it will be sufficient to touch upon the question if the Reporters say that it is already under discussion in other connections without being finally solved so far.

As regards the second point : standardisation of railway accounts, all the speakers stated that obviously the railways must first of all be put upon a sound footing freed from the general charges, the charges of a political nature, which are no longer justified, possibly suppress tariffs of a political or social nature, and so on.

This question also has been dealt with in other spheres. The European Conference of Ministers of Transport in particular put forward a plan for standardising the accounts, which certain Railways have seen partly introduced by their Governments.

Here, I have small complaint to make about this question of amortisation. This is that fundamentally the problem of amortisation is not longer uniquely a railway problem. It is at the same time a problem that affects both State and railway. Therefore, as we are an Inter-

national Railway Congress Association and a mixed association, it might be opportune that in the future when such a question arises, the question is put both from the government and from the railway point of view. I think everyone would gain from this.

As regards the problem of standardisation, this point has been sufficiently developed by certain speakers so I need not go into it again. I would just like to say one thing : if there are some railways in Europe which are still in a happy position — like the Netherlands Railways to some extent, and probably the Swedish and Swiss railways — there are also others which are not in such a happy position. It is clear that if standardisation is applied to the small railways — I am thinking above all of the Belgian Railways and perhaps in part the Luxemburg Railways which I know particularly well — and if the railways are compensated in full for all that they have a right to under the heading of such standardisation, the costs would still not be completely covered. This at once sets up a much more complex problem from the point of view of amortisation, bound up with the problems of the general organisation of transport which Mr. SJÖBERG mentioned just now. Not only are the arrears in renewals on the railways much too great so that all the funds on which they can lay their hands at the present time are insufficient from the point of view of the accounts, but in addition a general organisation should be set up which would enable them to be included in the general transport plan in spite of all this.

I would suggest, for example, that mention might be made, possibly at the

end of the Summaries, that close contacts should be made, in agreement with the railways, so that the problem of amortisation from the point of view of the accounts and from the point of view of standardisation can not only be solved, but be solved fairly from the point of view of what should actually be covered by amortisation.

First of all, perhaps certain lines will have to disappear, upon the survival of which however the Government particularly insists. In such a case they take responsibility from the point of view of amortisation which the railway should not have to support.

On the other hand, if the standardisation of the accounts leads to certain vexations on certain railways, this proves that the general costs are too high. And if the general costs of the railways are too high compared with the competition, this means that there is something altogether wrong on the railways. If it does not work, it is because the railway has imposed upon it, from the point of view of their staff for example, extremely abnormal obligations in certain cases, as well as political obligations as regards the lines.

The standardisation of the accounts being possibly applied even to the staff, renewals being limited to what they should in fact be limited to, the railway must be given new assets to allow it to rejuvenate itself, which, in my opinion, is quite outside normal renewal.

Consequently, I think the Government on its side should, as it has done for the roads and waterways, in certain cases, infuse this energy and make additional efforts for five or ten years as regards

investments in renewals so that this rejuvenation can take place. If this is not done, the small railways are certainly doomed. This must be clearly recognised, sad as it is.

Consequently, perhaps the Reporters could suggest at the end of their report that close contacts should be established between the Governments and the Railways to ensure that amortisation really covers that which the railways have an interest in amortising, i.e. what is profitable, and that whatever is superfluous be suppressed, this superfluity being decided either by the Railways or by the Governments.

The President (in French). — Mr. VREBOS according to tradition, the Reporters have to express the point of view of railwaymen, of the railways. The States are invited to express their point of view as well, but the Reporters are railwaymen first and last, and consequently it is the point of view of the railway that is dealt with.

As regards the general transport policy, I think that in point 5 of the Summaries mention is made of a reasonable organisation. Every railwayman understands by reasonable organisation the liberty to suppress certain unprofitable services.

I do not think there are any partisans of monopoly amongst the railways or the railwaymen; we are all bound up with competition. We only desire the possibility of adapting ourselves to these new situations.

Gentlemen, I think, in view of the time allotted to us, that we should go on to the discussion of the Summaries. We shall have ample occasion to express our

wishes and certain suggestions, modifying the Summaries if necessary.

I will now call upon Mr. MARIN, and after that the general discussion is definitely at an end.

Mr. Marin, Permanent Commission of the Association (in French). — Gentlemen, I am intervening in this discussion because I heard the Swiss delegate Mr. MEYER put forward three points. First of all, he took up Mr. WANSINK's suggestion which endeavoured to make a distinction in renewals of the actual replacement and that part of the replacement which constituted an improvement in the installations, traction methods, coaches and goods wagons. He also considered the charges the railways have to carry because of the fact that the State obliges them to render certain services in favour of the general economy, charges which lie outside the actual operating requirements and affect the general interest.

These are questions which we have already discussed at length amongst ourselves and I think everyone is in agreement about this.

But as far as I am concerned there is a second point, and this is why I want to say something : that is the question of the tariffs.

In Switzerland, things are very different, because the Swiss Railways are able to have a credit balance sheet. But for all the railways with deficits, the matter is not so simple.

Mr. MEYER stated that the question of the tariffs is complicated because of the fact that if the railways increase their rates, they put themselves in a weaker position as regards competition.

On the other hand, the State, at least in Italy, does not allow the rates to be increased. We therefore find ourselves in a vicious circle.

In addition, to determine the rates which should be applied, we have to know the costs. You all know better than I that the costs are the result not only of the operating costs, but also of the amortisation of all that is actually not renewal, i.e. replacement costs. They also cover the amortisation of the funds received from the State, or from loans, which you have to pay back. These sums which you have to pay increase the cost of the services the Railways assure.

It might be that if there was no increase in labour costs, nor in the cost of the materials needed for the working, the improvements you make in the working might result in advantages in the form of reduced prices.

And I am asking myself if it is possible to determine the costs. The railways suffer competition not only from the road but also from the waterways and air services, who do not have to pay amortisation charges on the work they carry out.

I quote the example of the construction of the Fiumicino Airport not far from Rome, which is a reconstitution of the Ciampino Airport, which is not modern enough for the new types of aircraft.

You say you paid 30 000 liras to go to Paris by air. But has the aircraft paid the amortisation of the works? This amortisation has to be debited to the aircraft, otherwise you cannot offer competitive rates. And it is the same for the road.

Mr. Meyer (in French). — Agreed.

Mr. Marin (in French). — It is for this reason that I endeavoured to attract the attention of all the railwaymen present here. The Governments must be urged to establish a transport policy, and I am perfectly in agreement with what my friend Mr. VREBOS has said.

The President. — Gentlemen, if we are going to speak of co-ordination, all the Railways will be agreed to ask :

1) first of all equality of treatment for all transport undertakings;

2) a sane tariff policy, in conformity with the facts of competition. If the State does not give us the change to fight with a sane tariff policy, we demand compensation for the charges which have nothing to do with the working. I think we are all agreed about this.

What does all this mean? It means that in principle we are all agreed upon these points : equality of treatment and a sane tariff policy. Otherwise the State must compensate us for the charges it imposes upon us. Is not this everyone's opinion? If so, we need not discuss a transport policy at any length.

I will now call upon Mr. KELLER.

Mr. Keller (in French). — Mr. PRESIDENT, I think it would take us too far if we, in our capacity as Reporters, intervene in a prolonged general discussion. That is why Mr. FELDER and myself think it would be better not to join in the general debate. But we would like to ask Delegates who made suggestions involving any change in the text of the Summaries to return to these suggestions during the discussion of each of the Summaries.

The President (in French). — Gentlemen, are you all agreed that we should do this? (*Agreed*). We will therefore go on to the discussion of the Summaries and I will ask Mr. SCHOONJANS, the Principal Secretary, to read them to you one by one.

Mr. Schoonjans (in French). — Here is the proposed *Summary No. 1* :

1. The great majority of the Administrations replied in the negative to the question if the state of their equipments corresponded to the present state of the technique and to the present needs of the traffic. Very great arrears are ascertained in the renewal and modernisation of both fixed installations and rolling stock.

The President (in French). — The discussion is open for Summary No. 1.

Mr. Houlez. — I want the last sentence to be slightly modified as follows : « There are very considerable arrears if not in the renewal, at least in the modernisation... » As I am not absolutely certain that there are always arrears in renewals, whereas there is no doubt that there are in modernisation.

The President (in French). — Does the Reporter agree?

Mr. Keller (in French). — I do not altogether agree, because this is correct for the great majority of Administrations. From the reports, it is found that on the great majority of Administrations there are very considerable arrears not only in modernisation but also in renewal (*That is so*).

Mr. Bosc, French West African Railways (in French). — I think we would meet both the representative of the S.N.C.F. and all the other Administrations by adding « in general ». The text would be : « There are, in general, great arrears... » (Mr. HOULEZ approves).

The President (in French). — Do you agree, Gentlemen? If so, will Mr. SCHOONJANS please read Summary No. 1 in its final form :

Mr. Schoonjans (in French). — The final text of *Summary No. 1* will be :

« The great majority of the Administrations replied in the negative to the question if the state of their equipment corresponded to the present state of the technique, and to the present needs of the traffic. Very great arrears are in general ascertained in the renewal and modernisation of both fixed installations and rolling stock. »

— *Adopted.*

The President (in French). — We will go on to Summary No. 2.

Mr. Schoonjans (in French). — *Summary No. 2 :*

2. The arrears in the renewal and modernisation of the equipments are explained partly by war damage and the postwar disturbances. But this is not the principal reason. Proof hereof is that private industry has recovered much more quickly than the railways. The main reason lies in the fact that the railways do not have the needed financial means to auto-finance their renewals as is the case with industry.

The President (in French). — The discussion is open on Summary No. 2.

Mr. Wansink (in French). — I suggest adding in the last sentence after « to auto-finance their renewals. » the words « and the modernisation » to make the text agree with that of the first Summary.

Mr. Elefteriadès (in French). — It is considered that the renewal of the installations can only be done by autofinance. However, the Railways can, as they did at the beginning, make use of fixed interest loans to get the funds they need for the renewal of their stock or their installations, i.e. for re-equipping themselves. Getting a loan moreover enables them to get out of the vicious circle the Reporters describe by the words « Auto-financing is only possible provided the tariffs cover at least the expenses including adequate amortisation... » By replacing a given element, — a definite sum borrowed which the legislator generally keeps at its original amount despite any currency deterioration which modifies its intrinsic value — for the element of renewal fund which varies according to individual estimates, getting a loan in this way enables one to avoid the great diversity of amortisation methods, the arbitrary figures, all that « about » which we find through the Reports. We find ourselves in a vicious circle. We want to use the renewal funds to make all the improvements, all the modernisation which seems desirable and we know in advance that the vagueness, the imprecision of the method by which this fund is constituted prevents all the railway Administrations as they complain from having a sufficient fund.

This « about » is precisely what enables the State which generally intervenes in

making up the deficit or in giving the necessary financial assistance for the improvements, always to reduce the amount asked for by each railway, whereas if we only had an undisputable juridical method based on an application which could not be cut down, the State would find it much harder to reduce the sum asked for.

May I explain what I mean. To start with, the railways had recourse to loans, to borrowed capital, as a delegate pointed out just now.

The President (in French). — For constructional and equipment purposes.

Mr. Elefteriadès (in French). — For constructional and equipment purposes.

Such capital is financially amortised, especially in the case of obligatory loans. Such loans include a fixed repayment charge and after a certain time, the loan is paid off. After this it can be considered that the asset, which is part of the railway, is free from all charges. In other words, the Railway Administration or its shareholders no longer have any obligation in connection with this asset since, by definition, the fund used to get it, which is fixed by law, whatever devaluation may occur, whatever variations there may be in the purchasing power of the currency, is paid off by the financial sinking fund. If amortisation can be done like this, why not consider each item of re-equipment in the same way, as in the beginning, and get it by means of a loan which has the advantage that through all the devaluations and fluctuations in purchasing power, it remains fixed, since we have found that nearly all the legislation which has dealt

with devaluations has not touched the principle of paying back debts contracted to the original amount. For example, a loan made in 1910 for 1 million francs, no matter what changes have since occurred, has always been paid in virtue of the obligations imposed by law by 1 million francs *ne varietur*. So, here we have one fixture which makes it possible to find a way of getting over this variation which in fact is the cause of all this variety of methods, this vagueness, this « more or less » which we wish to get out of.

The President (in French). — What text do you suggest?

Mr. Elefteriadès (in French). — In the text, mention is made of autofinance.

« Arrears in renewal and modernisation can be explained in part by war damage... » is a statement of fact. « But that is not the principal reason... The principal reason lies in the fact that the railways have not the necessary financial means to autofinance their renewals... » I think that if the Reporters wished to find ways of renewing by this text, by quoting autofinance as a means, we will not reach the desired goal, since we know, by definition, that autofinance is not possible; consequently it is a wish that cannot be achieved. The basis of my demand is the fact that we have recourse to a method which does not lead us to the object in view.

I suggest that instead of speaking of autofinance, we speak of making use of the right financial methods, but then we open the way for a discussion of all these methods.

The President (in French). — I want to make a comment. The Summaries refer to a sound financial management which has nothing to do with politics. We all know very well that politics often prevent us from having a sound management, but I think our Summaries should give the principles of a sound financial management. I presume everyone is agreed about this.

Mr. Fernandes, Benguela Railway (in French). — Mr. PRESIDENT, the matter under discussion is simply a question of terminology. I think that the Reporter in speaking of autofinance, did not intend to exclude the other methods the last speaker mentioned, i.e. getting a loan. Therefore, the difficulty could be overcome if instead of using the word « autofinance » in the Summary, we said : « the means of carrying out the renewal and modernisation... » Whatever means are used, whether it be autofinance or getting a loan, what is needed is to make the necessary effort to renew the installations.

Mr. Morganti, Ministry of Transport, Italy (in French). — Mr. PRESIDENT, I am somewhat perplexed by the sentence in the middle of Summary No. 2 : « proof hereof is that private industry has recovered much more quickly than the railways. » I consider that this sentence does not take into account the competition which has influenced the position of the railway. I do not think it is a good thing to link up a comparison with industry simply by a reference to the lack of autofinance on the railway. Another phenomenon is in cause which has

nothing to do with the improvement of the railway services, but which nevertheless influences the new position the railway finds itself in vis-a-vis other methods of transport.

Mr. Houlez (in French). — I fully support this comment. It happens that what has occurred in France is exactly contrary to that which is affirmed in the text. It might well be said that war damage has speeded up the renewal of the railway rather than retarded it.

I am therefore asking for two modifications :

1) first of all, that proposed by the last speaker, i.e. the suppression of the sentence : « Proof hereof is that private industry has recovered much more quickly than the railways »;

2) in the third line, instead of « The arrears in the renewal and modernisation of the equipments are explained partly by war damage... » I would put « can often be explained ». It may explain it for certain railways but not for all.

Mr. Gillespie, British Transport Commission. — I am rather puzzled by the second summary and its translation. The first sentence refers to :

... « war damage and postwar disturbances... » again the last sentence states :

... « railways do not have the needed financial means to auto-finance their renewals as is the case with industry... »

Am I right in stating that war damage was compensated, and therefore finance is available to the administrations for such renewals?

Mr. Cecchi (in French). — Mr. PRESIDENT, I would like to return for a moment to the discussion which took place on the word « autofinance. » I cannot say that I agree with the suggestion to replace it by a more general expression, like « other methods ». I think we should stress the fact here that the present position is an abnormal one. Now autofinance is the normal method of providing for renewals. It is on the impossibility of using this normal method that we should insist. It is not a question of dealing here with all the methods of financing renewals, including those which must be used when it is impossible to finance them through the normal channels.

Mr. Bosc (in French). — There is probably some truth in the statement that has just been made. But I think we might reconcile the two points of view and not suppress completely the recourse to a loan asked for previously by putting « direct or indirect autofinance. »

And another remark : we approved the suggestion to suppress the sentence giving as a proof of the argument the case of private industry.

I think it is dangerous to give what goes on in private industry as a proof, as the retort may be — and there will be no lack of those making it — that probably we manage our affairs worse than private industry does.

However, without using what goes on in private industry as a proof, we might make a reference to it by modifying the sentence, and not giving it as a proof, for example by saying : private industry has greater facilities and therefore has

obtained better results than railway undertaking?

The President (in French). — I call upon the Reporter, Mr. KELLER.

Mr. Keller (in French). — Mr. PRESIDENT, Gentlemen, as far as Mr. WANSINK's first suggestion is concerned, to complete the text by saying : « the necessary financial means for the autofinance of renewals and modernisation of the installations. » I see nothing against it.

The President (in French). — You therefore agree to this suggestion?
(Agreement by Mr. KELLER).

Mr. Cottier (in French). — If you accept the suggestion to include the term « modernisation » we would then have to say « as is often the case in industry ».

Take the example of aviation. It never uses autofinance for new aircrafts. So we should say : « as is *often* the case » instead of « as is the case in industry ». In the case of modernisation, there must be certain reservations.

The President (in French). — We retain « renewal and modernisation »? Does everyone agree? (Agreed).

We will go back later to Mr. COTTIER's statement.

Mr. Keller (in French). — It is simply a statement, it is not a wish. It is not what the railways are asking for. Autofinance would also give us the means for modernisation. We might say : « The principal reason lies in the fact that the railways have not the necessary means

for the autofinancing of renewals and modernisation. » That is a statement. What we recommend comes afterwards.

The President (in French). — I suggest we now discuss the problem of direct or indirect autofinance, according to Mr. Bosc's suggestion.

Mr. Wansink (in French). — I would like to ask the Delegate who made this suggestion what he means by indirect autofinance.

Mr. Bosc (in French). — Direct autofinance means taking directly, from the railway receipts, the funds needed for an investment or renewal.

Indirect autofinance is a long term method, through a loan, like that we had from the International Bank. This loan carries with it an annual interest and repayment charge which has not to be paid all at once but some 10 years from the operating receipts in the same way as immediate autofinance from the same receipts. In practice therefore it is autofinance, since the operating receipts pay off the loan. But they pay it off over a period of several years.

The President (in French). — It is a question of terminology.

Mr. Keller (in French). — However, I cannot agree to such an interpretation of autofinance. Otherwise every case of finance by means of loans would be autofinance in the end, since all loans have to be paid back some day and have to be repaid from the receipts.

This question touches the very roots of

the problem and I think that if we modify the term autofinance, we will go too far in our suggestions.

As for Mr. ELEFTERIADES, if I have understood his comment rightly he wants to substitute the repayment of loans for sinking funds. That is all very well, but in the case of the renewal of installations, it would be a very different solution and we would end up precisely with what we want to avoid : an increase in our indebtedness. We would get this result with your system, because when we finance renewals through loans, we have to increase the loans because the renewal costs more than the original capital investment.

I think it would be advisable to make a distinction on the one hand between industrial amortisation and on the other the way in which the money is obtained, which may be from recourse to a loan. If the previous loans have been paid off, new debts can be undertaken.

Another objection to make would be that we would be at the mercy of the market when renewing our installations, which is too dangerous for the railways. The renewal of the installations is something that has to be done, whereas when building a railway, one is free to do it or not. It would therefore be too dangerous to rely on the market for capital when the installations has to be renewed.

The President (in French). — We must try to come to an agreement on what is meant by « autofinance. » I think that in English and German autofinance means « finance through ones own resources without becoming indebted to anyone else. » When speaking of autofinance

therefore, it is finance through our own resources, and consequently it is impossible to speak of indirect autofinance. There is only autofinance through ones own resources. Do you agree?

(Agreement of the French Delegates).

Then there is another problem : that of the expansion Mr. WANSINK spoke of.

I think that every industry when expanding is obliged to increase its capital-shares and capital-obligations. In the same way for the Railways, we may be obliged in order to modernise, which exceeds renewal, to increase the capital-shares and obligations. But afterwards, I think there must be some correlation between the expansion and the debt. In the case of renewal and modernisation, we ought to ask for the same treatment as industry. The distinction between renewal, modernisation and expansion is certainly rather difficult, but when industry modernises it always increases its capacity and I think we should ask the same treatment as they get.

Mr. Houlez (in French). — I quite agree with the Reporter as well as with Mr. CECCHI in saying that in the case of renewal — I am speaking solely about renewal — finance through a loan would certainly be an unsound policy; it comes to exactly the same thing as borrowing to cover a deficit.

However, this unsound policy may well be followed because no other solution can be found. Consequently, it seems to me that there is no danger in retaining the suggestion to replace the word « autofinance » in the second paragraph by « financing » especially as we are no longer speaking of nothing but the financing of

renewals but also the financing of modernisation, which can be met by a loan if it is going to be profitable.

The President (in French). — What do you think, Mr. KELLER?

Mr. Keller (in French). — In my opinion, we have not to state what is generally done, but what should be done. The fact that certain Railways have to finance renewals from loans is a fact, but it is unsound. We would like to say what ought to be done. For this, I think we should leave autofinance as such. We explained in the report what we meant by autofinance : i.e. finance from ones own resources.

Mr. Bosc (in French). — In this case, we should not add « and modernisation. »

Mr. Cottier (in French). — Mr. PRESIDENT, I think we might find a solution if we crossed out the word « autofinance » since we say « the railways have not the means... », which says all that is to be said.

If you wish to keep « modernisation » let us then say in the last line « as is often the case in industry ». There are industries that are able to finance themselves, which have funds for financing renewals and modernisation. I say that there are also industries which have no means of renewing and modernising, which have not got resources of their own. By adding the little word « often » — « as is often the case... » perhaps we can find the solution.

The President (in French). — It is a neutral formula, but we must not forget

that we deal with autofinance in point 3. We must have the courage to state that it is necessary for the Railways to have the means to autofinance. What is autofinance? It is a matter of discussion. But in practice, at the present time, even the Administration levying the taxes enable all industries to autofinance, covering not only the renewal but also modernisation which increases their capacity.

If we want to ask for the same treatment as industry, we must insist on the word « autofinance. »

Gentlemen, I will ask the Reporters to take into consideration all that has been discussed this morning and to reflect upon it, and suggest a definitive formula at our next meeting.

Do you agree to this? (*Agreed*).

— The meeting adjourned at 1 p.m.

Meeting of the 6th October 1958.

PRESIDENT : DR. H. GSCHWIND

— The meeting began at 9.30 a.m.

The President (in French). — Gentlemen, I declare the meeting open.

The Reporters have suggested a new text for Summary No. 2, as agreed at our last meeting. I will ask the Principal Secretary to read this to you.

At the same time, I suggest he read the new Summary No. 5. We will not discuss this latter just now, but this will show you what is said in Summaries 5 and 2.

Mr. Schoonjans (in French). — In the case of *Summary No. 2*, here is the new text suggested :

« 2. In certain cases, these arrears can be explained by war damage and the post-war disturbances. The main reason, however, lies in the fact that the traffic receipts of the railways are insufficient to finance by their own means the renewal and modernisation of their equipment,

as industry generally has been or is able to do (auto-financing). »

In the case of *Summary No. 5*, here is the proposed text :

« 5. To escape from this vicious circle, the railways ought at least to be able to secure the funds needed for renewing and modernising their equipment by auto-financing. Recourse to loans can be justified where there is an increase in transport capacity or where productivity will be increased; the resultant financial charges should always be capable of being borne to a large extent. Auto-financing is only possible with adequate amortisations which are really covered by the receipts. To obtain a better financial equilibrium the following measures are essential :

1) a still more perfect coordination must be carried out between the various means of transportation so as to make equal or closer the competitive conditions between them;

2) in so far as the inequalities in competition are due to indispensable public service charges which cannot be renounced or reduced, an equitable financial compensation by the State is essential; it goes without saying that charges which are outside rail operation needs, and are imposed by the State, should be met by the State. »

The President (in French). — Gentlemen, I repeat, we are not discussing point 5 yet. We merely read it to show you what will be discussed later on. We will first of all examine the revised text of Summary No. 2, which has just been read. I am therefore opening the debate on *Summary 2*.

I must also add that Mr. COTTIER made a suggestion at our meeting on the 2nd October, saying that there is all the more need for amortisation as there are extra burdens. This argument will be taken up when discussing Summary No. 3.

Are you agreed about the amended text for Summary No. 2? (*Agreed*).

In this case, we will go on to Summary No. 3.

Mr. Schoonjans (in French). — *Summary No. 3* :

3. Auto-financing can possibly be done only when the prices cover at least the expenses, these including adequate amortisations, that is to say amortisations calculated on the economic and not the technical life and on the replacement value.

Now, this condition is not fulfilled with most railways. The amortisations are inadequate, and even these insufficient amortisations are not covered by the receipts. If the amortisations are insufficient, it is not because the Administrations ignore the harmful consequences which will result. Usually a pressure is exerted by the political

authorities on the level of amortisation or renewal charges with a view to reduce the deficits to be met by the State. This pressure explains why the deficits are incompletely covered by the State who so cannot replace sufficient receipts. What the State gives to the railways so far as it meets the deficits is as a rule too much for dying and too little for living.

The President (in French). — Would you also add Mr. COTTIER's suggestion?

Mr. Schoonjans (in French). — Here is the text :

« The reduction effected in the amortisation of railways is therefore all the more difficult to justify since they have legal obligations to operate and carry which were imposed on them by the States; instead of a reduction these obligations would rather justify a strengthening of industrial amortisation in order to assure the continuity of rail transportation, at least for those lines which should be preserved and for which other modes of transport should not be substituted. »

The President (in French). — I open the discussions. I think it can be agreed that the French text can serve as a basis, and the English text will be completed and adapted.

Mr. Cottier (in French). — Mr. PRESIDENT, Gentlemen, I thank the President and the Reporters for having taken the suggestions I made at the last meeting into account in the suggested wording.

It seems to me, in effect, that to strengthen the position of the Railways with the Governments — the Governments always include a Minister of Finance at the side of the Minister of Transport — to overcome the hesitation of the Ministers

of Finance to grant the Railways the same industrial amortisation rights as the contributing industries, it is very important to make special mention of this legal difference between the railways and private industries. The different amortisation system is due to this, as the proposed text points out.

I think that the strengthening of their position mentioned above might consist at least in this, that the decline in purchasing power should be taken into account periodically in calculating the industrial amortisation; this should be obligatory like the industrial amortisation of the value of the first cost, the first capital investment.

This would be a very effective measure in favour of the Railways, which might be justified by their exceptional legal position.

I thank you.

The President (in French). — Has anyone any suggestions to make regarding any amendments?

Mr. Elefteriadès (in French). — Mr. PRESIDENT, Gentlemen, I think we should make it quite clear that the text suggested by Mr. COTTIER refers more particularly to those railways which are in a favourable position — like the Swiss railways — whose results enable them not only to make industrial amortisations but to increase them by adding, as Mr. COTTIER suggested, the excess value due to decrease in purchasing power. Unfortunately, there are many railways which are not in such a position, which have a deficit, and which both for their industrial amortisations and for their completion with the excess values have

to have recourse to a surplus from the State to cover their deficit.

The President (in French). — Gentlemen, I think what we all want is to get out of the vicious circle in which we find ourselves. That is why we have appealed to the Governments. We do not wish to pursue this unsound financial policy which is putting the Railways in an impossible position.

Have you any other suggestions to make?

Mr. Elefteriadès (in French). — If that is your opinion, I can only support it to modernise rather sooner.

Mr. Mukerjee. — Mr. CHAIRMAN, in the English version it is not very clear what is meant by :

... « The State gives to the railways as a rule too much for dying and too little for living... »

Mr. Keller (in French). — The last sentence means quite simply that if the railways can continue to exist for better or worse, they cannot modernise themselves. Now, if they are to be really alive they must modernise themselves. However, the means of doing so are lacking.

The railways cannot be suppressed; the State forbids it; it wants the railways to continue to subsist, but will not give them the means to subsist as they should, i.e. by modernising themselves. The railways are unable to follow technical progress, nor to go forward.

The President (in French). — This is a political aspect.

Mr. Mukerjee. — Could the context be more precise? After all, this is the Summary of an International Congress

The President (in French). — This is dealt with in point 4, and in point 5 it is stated that we must get out of this vicious circle, the vicious circle being that we cannot live but that we must live.

The text seems sufficiently clear to me.

Mr. Mukerjee. — Then if point 5 covers it, I suggest we drop this particular sentence.

The President (in French). — It is a political question. I think that the Railway Delegates do not wish to suppress this paragraph, whilst the Governments representatives may be in favour of suppressing it. To get out of this impasse, we will put this phrase to the vote.

— *The majority — against three Delegates — are in favour of retaining the paragraph.*

Are there any other suggestions about point 3?

— *Summary No. 3 is adopted in the following form :*

« 3. Autofinancing is possible only provided that the tariffs cover at least the expenses, including amortisations, that is to say amortisations calculated on the economic and not the technical life and on the replacement value.

« This condition is not however fulfilled with most railways. The amortisations are inadequate and even these insufficient amortisations are not covered by the receipts. If the amortisations are insufficient, it is not because the Admin-

istrations ignore the harmful consequences which will result. Usually pressure is exerted by the public authorities on the level of amortisation or renewal charges with a view to reducing the deficits to be met by the State. This pressure explains why the deficits are incompletely covered by the State and thus cannot replace insufficient receipts. What the State gives to the railways so far as it meets the deficits is as a rule too much to die and too little to enable them to live.

« The reduction effected in the amortisation of railways is therefore all the more difficult to justify since they have legal obligations to operate and carry which were imposed on them by the States; instead of a reduction these obligations would rather justify a strengthening of industrial amortisation in order to assure the continuity of rail transportation, at least for those lines which should be preserved and for which other modes of transport should not be substituted. »

Mr. Schoonjans (in French). — *Summary No. 4 :*

4. The delay in renewal and modernisation of the investments weakens the position of the railways facing their competitors: for example the railway carriages 40 to 50 years old cannot compete with the modern cars or aeroplanes. Furthermore, it is an obstacle to introduce modern technical methods for increasing productivity and improving the service. The result is a growing deficit which from its side causes a growing pressure on the amortisations.

The President (in French). — The discussion is open on Summary No. 4.

Mr. Bosc (in French). — I agree with the meaning of this fourth Summary,

but I would wish the wording of the last two paragraphs to be a little more precise.

Instead of « Furthermore, it is an obstacle to introduce... » as in fact what is being prevented is the acquisition — I would suggest : « Furthermore, it prevents the acquisition of modern technical means, the use of which would make it possible to increase productivity and improve the services... »

We are talking on the financial plane and it is not custom which prevents the policy : it is the acquisition of these means.

In the final paragraph, it is stated : « The result is a growing deficit which from its side calls... » I would like to point out that it does not call, it leads, it has a consequence; it is not a wish, it is a direct consequence. I therefore suggest the following wording : « The result is a progressive increase in the deficit which in its turn leads to increasing pressure on the amortisations.

The President (in French). — Do the Reporters agree to these suggestions? (*Agreed*).

Mr. Cottier (in French). — In the first line, you speak of the position of the railway in the face of competition. I think that the term « weakens » is correct from the long term point of view, but from the short term one, the opposite is true. Even motor transport undertakings might criticise this position of insufficient amortisations and complain : « You are artificially reducing your costs and making unfair competition as you are not setting aside sufficient industrial amortisations. »

However, what is said here is true in the long run. In the long run obviously the competitive position is weakened.

Perhaps we could say : « weakens the position of the railways vis-a-vis their competitors, or may even falsify competition. »

I do not know if I have expressed myself very clearly. The competition may be falsified, but only on the short term point of view. The costs are lower when the industrial amortisations are lower...

Mr. Bosc (in French). — I do not agree.

Mr. Cottier (in French). — Consequently, the road competitor can say : « you are offering too low rates because your industrial amortisations are too low. »

The President (in French). — If the amortisation is sufficient, the consequence is that the prices are fair.

Mr. Bosc (in French). — When one has to work with stock in a poor condition or which is not in the proper condition, a great deal has to be spent on maintenance, and contrarily to what is generally believed, the costs in the face of competition are higher. You speak of wagons 40 to 50 years old; it is obvious that their maintenance costs a lot more than that of new wagons, but you pay this because it comes under the heading of direct working costs.

Mr. Cottier (in French). — I would accept with this answer from the motorists.

Mr. Wansink (in French). — **Mr. PRESIDENT**, I should like to ask the Meeting a question.

In point 4, we are speaking of the effect of insufficient amortisations on the competitive position of the railway, the quality of its services being backward compared with those of other methods of transport able to follow technical developments.

If the problem of the weakened competitive power of the railway arises, it is not only because this policy of inadequate amortisations has an effect upon the position regarding the rolling stock. It is also because the railway becomes less attractive to the young. A human element is also concerned. It no longer becomes possible to recruit young men having the requisite qualities for railway service as required to maintain and develop its competitive power. And I am wondering, **Mr. PRESIDENT**, whether we should not include a suggestion on these lines.

The President (in French). — This is an important point.

Gentlemen, are you agreed that we should add such a sentence? (*Agreed*).

Mr. Vrebos (in French). — I have followed the discussion between **Mr. COTTIER** and **Mr. BOSC**. There is a little truth in spite of everything in what **Mr. COTTIER** said and I think it is the wording which gives rise to this possibility of faulty interpretation.

Mention is made of amortisations in the present. It says : « The amortisations are inadequate... » In reality, the unprofitability of the railways is due above all to the fact that the amortisations were inadequate in the past. I am wondering

therefore if your opening formula should not be corrected. We might simply say : « Amortisations have long been inadequate » and then continue the sentence with a slight alteration. In this way, you will make it quite clear that the lack of modernisation is the result of inadequate amortisations in the past.

If you had to say that the amortisations « are » inadequate, the sudden renewal of your installations would lead to an increase in the cost price.

The President (in French). — We mention the « delay » in point 4.

Mr. Vrebos (in French). — Yes, but in Summary No. 3 we say : The amortisations are insufficient... » In reality, they have been so for a long time. It would be better to say : « have long been insufficient. »

The President (in French). — In point 4, it clearly says « the delay ».

Are you making a suggestion?

Mr. Vrebos (in French). — No, not if you think point 4 corrects this idea adequately. But, in my opinion, it is point 3 which might be misinterpreted as **Mr. COTTIER** has stressed.

The President (in French). — The « arrears » are also mentioned in point 2, then further on the « delay ». We have said enough to make it clear that we are in arrears.

Are there any other suggestions?

Mr. Morganti (in French). — **Mr. PRESIDENT**, I think the word « weakens » presents a picture which is not quite true

seeing that the Railways are already victims of the competition of other forms of transport which have recently strengthened their position. It seems to me therefore that another conception, another idea should be stressed: the delay in the renewal and modernisation of the installations makes the position of the railways more serious, in the sense that the railway is in fact already the object of such competition which meets the requirements of the users of transport by road or by air. Here the position of the railway compared with these new methods of transport is made more serious because of the fact that it has not been able to renew and improve its prestations and services.

I suggest therefore saying instead of « weakens », « renders more serious » the position of the railway.

The President (in French). — We can retain this suggestion (*Agreed*).

Mr. Houlez (in French). — To meet the suggestions of both Mr. COTTIER and Mr. BOSC, I think it would be as well to make it quite clear that the position of the railways which has weakened is the combined technical — to satisfy Mr. COTTIER — and financial — to satisfy Mr. BOSC — positions. I would therefore put « the technical and financial positions » ...

The President (in French). — Do the Reporters agree? (*Adopted*).

Mr. Wansink (in French). — Mr. PRESIDENT, may I ask if the Meeting has adopted my suggestion.

The President (in French). — Yes.

Mr. Wansink (in French). — May I leave the actual wording to the Reporters?

The President (in French). — Will Mr. SCHOONJANS please read point 4, as amended according to the discussion.

Mr. Schoonjans (in French). — Here is a text, obviously one got out in a hurry: « ... The railway is also to some extent diminished in this way, which causes it other difficulties in other fields, especially as regards labour. »

Mr. Wansink (in French). — That is too weak.

Mr. Houlez (in French). — « that of recruiting labour »

Mr. Wansink (in French). — It is a question of the outstanding young men for whom the railway no longer has any attraction.

A Delegate (in French). — « recruitment of officials »

Mr. Schoonjans (in French). — « The ageing railways thus have no attraction for youthful labour... »

Mr. Bosc (in French). — « ... puts the best of the young people off a railway career. »

Mr. Schoonjans (in French). — « The ageing of the railways puts off the best of the young people from adopting a railway career. »

Mr. Cottier (in French). — The last sentence of Summary No. 4, in my opinion, does not correspond to the policy that has been followed, in Switzerland for example. It says : « The result is a growing deficit which in its turn calls for increasing pressure on the amortisations. » I think that « pressure » means a « reduction » in the amortisations, but it is not at all clear.

The President (in French). — It was agreed to say « leads to » instead of « calls for ».

Mr. Bosc (in French). — « ... leads to a reduction in the amortisations. »

Mr. Cottier (in French). — This is not always the case. In Switzerland, the State railways and the private railways had enormous deficits. These were not merely transferred to the State, but exact calculations were made for the industrial amortisations; the inadequate values were increased by 4 or 5 millions. It is therefore not exact to say that regularly such an increase in the deficit involves increasing pressure on the amortisations. Or else let us say « may » lead to... It might be just the opposite.

The President (in French). — You have forgotten that when I became Chairman of the Swiss Federal Railways, the first thing I did was to insist on the condition of proper amortisations. It was the hardest battle of all.

Finally, instead of giving us a subsidy for five years, we were given one conditionally for three years. As the following years were good ones, it worked out all right.

But precisely because we went very fast in 1949, they did not want to increase the amortisations. Indeed it was so, that was the truth even in Switzerland.

Mr. Cottier (in French). — **Mr. PRESIDENT**, I will merely reply that when the first great reorganisation was made, in view of the considerable deficit, the amortisations were not simply decreased. Exactly the contrary was done : they were increased. But they were calculated.

That is why I am asking you to put at least « may call » or « may lead to », as it does not regularly in all cases lead to a reduction in the amortisations.

Mr. Felder (in French). — I would suggest : « often leads to ».

Mr. Bosc (in French). — I think that **Mr. COTTIER's** remark can be explained by the sixth Summary. On the accountancy plane, in the way in which the financial sinking funds are shown, if I have understood rightly, what **Mr. COTTIER** wants is that the amortisations should be shown at their true value, even if the financial means are inadequate. This can be referred to in Summary No. 6.

What we are saying in the fourth Summary is that in actual fact the financial means are lacking for making proper amortisations. But to go on from this to not showing them in the balance sheet, is quite another matter. This is an accountancy problem.

The President (in French). — Could we not say « often leads to »? If everyone agrees. (*Agreed*).

Mr. Laloni (in French). — Above all I would ask you not to discuss the special case of every country. The problems must be studied from the general point of view, outside the altercations — if we may so call them — in the different countries.

If I have understood aright, Mr. PRESIDENT, we have adopted a sentence with the following meaning : the ageing of the railway stock puts off the best of the young from following a railway career.

I hope this sentence will not be included in our Summaries. It is not the ageing of the stock, but the financial rewards upon engagement which put the young off a railway career. The two things may be linked up. It is the financial difficulties of the railway which prevents high wages being offered, but the real reason why the best of the young are put off, is the financial one.

Mr. Bosc (in French). — Not entirely. I am not so materialistic...

Mr. PRESIDENT, I must apologise for answering Mr. LALONI criticism. I do not think — at least in the case of the young men whom I know — that it is solely a question of wages which puts them off a railway career. It is obvious, however — in this same Section we have discussed the use of electronics in connection with management problems which constitutes an extremely up-to-date technique in which the young men are keenly interested — if we have not the financial means to install them or purchase them, whilst recognising their value for making economies in railway operating, these self-contained operating units, we will keep a lot of young men off the railway, quite apart from the wages we can offer.

The President (in French). — Gentlemen, we are going too far...

But I think if we wish to retain Mr. WANSINK's suggestion, we might say : « one of the causes... »

Mr. Bosc (in French). — Exactly.

Mr. Wansink (in French). — Mr. PRESIDENT, the cause of the phenomenon which I have reported is the weakening of the position of the railways vis-a-vis their competitors. They no longer have the attraction they did fifty years ago; their attraction is declining. It is useless to go into details. I do not think it is a question of wages. It is due in the first place to the decline in the confidence felt in the future of this method of transport.

Mr. Meyer (in French). — I intended to say exactly what Mr. WANSINK has just said. It is rather a psychological question, then a question of attraction. If the young men no longer believe in the future of the railways, the railways are in a very difficult position.

Mr. Laloni (in French). — Mr. PRESIDENT, I agree with what Messrs. WANSINK and MEYER have just said. But I would like the sentence which has been adopted — i.e. : the ageing of the stock is the cause... etc. — not to be kept. Could we not rather say : « is one of the causes... »

The President (in French). — One of the chief causes.

Mr. Wansink (in French). — It is in effect the weakening of the position of

the railways compared with their competitors that is the cause. But this can be seen from the text.

Mr. Mukerjee. — **Mr. President,** I submit that this question of whether or not the railways are attractive for bright young people is not relevant to the subject we are discussing, and that we should confine ourselves to what is stated in the Summary.

The President (in French). — Will the Principal Secretary please read Summary No. 4 as it now stands after the discussion to see if we are all agreed.

Mr. Schoonjans (in French) :

« 4. The delay in the renewal and modernisation of the installations renders the technical and financial position of the railways graver still in the face of competition; for example the 40 to 50 year old railway coaches cannot compete against modern cars or aircrafts. In addition, it prevents the acquisition of the means of modern technique, the use of which would allow the railways to increase their productivity and improve their services. The result is a growing deficit which in its turn often leads to increase pressure on the amortisations. » Perhaps we could add : « and reduces confidence in the future of the railway. »

Mr. Wansink (in French). — **Mr. President,** I think my remark should come earlier on. The original text said : « The delay in the renewal and economisation of the installations weakens the position of the railways compared with their competitors. » Point made. The example

should be crossed out and then we should say : « On the one hand, the old installations cannot compete with modern cars or aircrafts... » We could if necessary suppress the whole of this and simply say : « This situation makes it impossible to acquire the means of modern technique to increase productivity and improve the services on the one hand; on the other hand, they diminish the attraction of the railway for the young » or « the best of the young. »

The President (in French). — Do you agree with **Mr. WANSINK's** comments. If so, will **Mr. SCHOONJANS** please read the final text.

Mr. Schoonjans (in French). — « The delay in the renewal and modernisation of the installations renders the technical and financial position of the railways graver still in the face of competition. On the one hand, this position prevents the acquisition of the means of modern technique whose use would increase productivity and improve the services. On the other hand, it reduces the attraction of railway careers for the best of the young. The result is a growing increase in the deficit, which in its turn often leads to increasing pressure on the amortisations. »

Mr. Wansink (in French). — It means the quality of the stock, the installations and the management as a whole.

The President (in French). — Are you agreed on this wording?

Mr. Rousseau, International Railway Union (in French). — One word, **Mr. President.**

If the example is left out, the sentence is that much less clear. Then the first sentence might be complete like this : « renders the position of the railways graver still in the face of their more youthful competitors. » The example made it quite clear...

The President (in French). — Is the road younger than the rail?

Mr. Bosc (in French). — And the waterways?

Mr. Rousseau (in French). — Their stock is younger.

The President (in French). — Let us leave the age out of it. It is a question of the competition.

Mr. Felder. — I suggest that instead of saying : « on the one hand » in the second sentence, to say : « last not least ».

The President (in French). — It is a question of form and the wording. I think that in French it is better to say « d'une part » et « d'autre part ».

— *Summary No. 4 is adopted in the following form :*

« 4. The delay in the renewal and modernisation of the investments renders the technical and financial position of the railways graver still in face of competition.

« On the one hand, this position makes it an obstacle to acquire the means of modern technique whose use would allow the railways to increase their productivity and improve their services.

« On the other hand, it reduces the attraction of railway careers for the best among the young people.

« The result is a growing deficit which in turn, causes an increasing pressure on the amortisations. »

The President (in French). — We now come to point 5, in the new text.

Will Mr. SCHOONJANS please read it.

Mr. Schoonjans (in French). — I would remind you that the original text of *Summary No. 5* read as follows :

5. To get out of this vicious circle, the railways ought at least to be able to procure the funds needed for renewing their equipments by auto-financing. This is only possible with adequate amortisations and especially by « earned » amortisations, that is covered by the receipts. To obtain this financial equilibrium, two actions shown to be essential amongst others :

- (1) The railways must be relieved of or indemnified for the costs resulting from the services imposed by the State that favour the economy of the country as a whole; they must also be relieved of charges which are outside the operating needs.
- (2) A reasonable co-ordination must be carried out between the various transport carriers in order to place the railway on equal terms with competing means of transport.

The question of the conservation of the investments and capital of the railways is therefore fundamentally one of the general transport policy.

In view of the comments made at the last meeting concerning the idea of autofinance, as well as the amendment to the wording suggested by Mr. COTTIER, the revised text prepared by the Reporters which has already been read, is as follows :

« 5. To escape from this vicious

circle, the railways ought at least to be able to secure the funds needed for renewing and modernising their equipment by auto-financing. Recourse to loans can be justified where there is an increase in transport capacity or where productivity will be increased; the resultant financial charges should always be capable of being borne to a large extent. Auto-financing is only possible with adequate amortisations which are really covered by the receipts.

« To obtain a better financial equilibrium the following measures are essential:

1) a still more perfect coordination must be carried out between the various means of transportation so as to make equal or closer the competitive conditions between them;

2) in so far as the inequalities in competition are due to indispensable public service charges which cannot be renounced or reduced, an equitable financial compensation by the State is essential; it goes without saying that charges which are outside rail operation needs, and are imposed by the State, should be met by the State. »

The President (in French). — I want to remind you that the French text is taken as the basis for the discussion.

Mr. Bosc (in French). — **Mr. PRESIDENT**, I am in complete agreement with this text. There is one point which in my opinion is essential: that is the qualification to be added to « coordination ». The Reporters suggested: « improved coordination. » This means... whatever you want it to mean. In fact, as far as I am concerned, coordination is either

effective or non-existent, even when provided for in the texts.

We have — if I may be excused for referring to actual facts — different cases in the French overseas possessions. In the Cameroons, for example, coordination is effective because the regulations are respected because road and rail who are in competition and neighbours, use the same bridge and it is the railway which checks that the lorry loads comply with the prescribed limits. On other railways, although the same regulations are in force, owing to the lack of material means to check that these regulations are complied with, the railway's competitors get away with a lot.

I would therefore like to suggest — and I must apologise for this somewhat lengthy report — that the word « effective » be added to « coordination », if you agree.

The President (in French). — Do you agree?

Mr. Houlez (in French). — **Mr. PRESIDENT**, I should like to see the idea of profitability or non-profitability introduced into the text of this Summary. It is stated that the loan should be restricted to certain investments which are defined. I think they might be defined more clearly if we simply said that the loan should be restricted to profitable investments, i.e. those which will bring in receipts or savings at least equal to the additional financial charges.

The President (in French). — I think that if we speak of modernisation, we raise the problem of financing it. We

also wish to increase the profitability. But the increased profits must amply cover the cost of the loan. We wish to have the chance of increasing productivity by modernising our installations. Industry profits by this, whereas the railway, even if wages increase and the hours of work are reduced, has the greatest difficulty in increasing its tariffs. Consequently, we should be given the possibility of increasing our productivity. If we have recourse to loans, we should have a guarantee that either the additional revenue from the traffic or the savings realised should be amply sufficient to cover the additional costs which this will lead to. I think this is the idea.

Mr. Houlez (in French). — I quite agree. I simply wanted to define the scope of the costs which can be covered by the loan and which are profitable, and the scope of the costs which should not normally be covered by a loan because they are not profitable. Costs for renewals and repairs do not give rise to savings nor receipts, and therefore should not be covered by a loan.

The President (in French). — I think the point needs clarifying. Is it intended to say that all increases in profitability can be covered by a loan, or that it is only when the profitability is considerable that recourse can be had to a loan? I suggest the second interpretation.

Do you agree? (*Agreed*).

Mr. Elefteriadès (in French). — I think that Mr. HOULEZ's idea lies within this distinction between the work. If the operating receipts have to bear the cost

of building bridges, these very high costs which in the case of the roads or waterways are directly born by the State, we put a considerable burden upon the railways and put them in a weakened position as regards competition.

That is why I think we should retain the idea Mr. HOULEZ expressed at the previous meeting : put aside all the capital costs including all those relating to the substructure, and charge up all the costs under this heading to the maintenance account, without making any distinction between current maintenance costs.

Mr. Houlez (in French). — This comes under point 6.

Mr. Elefteriadès (in French). — You speak of profitability, and in this way, we have tried to find which are the profitable costs of modernisation.

The President (in French). — This will be discussed under point 6.

Mr. Elefteriadès (in French). — If you like, we will return to the matter under point 6.

However, in the case of point 5, I have certain precisions to suggest myself, if you will allow me.

I would refer in particular to the very different positions on railways showing a profit, as the Swiss railways generally do, and most of the other railways which are run at a loss; and then to the fact that the Swiss Railways have no longer any financial amortisations, whereas the other railways have. This results in very widely different positions, and I think to make

the discussions clear the following points should be cleared up :

As regards the fundamental question, all amortisation of the « capital assets » in other words « the installations, and rolling stock » — industrial amortisation — which has to be added to the amortisation of loans which have been used to carry them out — financial amortisation — will form a double user, leading to an inaccurate presentation of the balance sheet. This is therefore something to avoid.

There are some railways which, unlike the Swiss Railways, have still got to do considerable financial amortisations.

The President (in French). — It is a question of form. Here we are discussing the profitability of loans. We are not talking of the accounts. This subject is dealt with in Summary No. 6.

Mr. Eleftheriadès (in French). — Mr. PRESIDENT, I believe point 5 deals with the need to get out of the vicious circle in which we find ourselves and which leads the States to reduce the sums allocated in the operating accounts for amortisation. Here, the Reporter proposes precisely to cover both the assets and the capital by an adequate sinking fund. It is on the notion of assets and of capital that I want to make this precision.

In the case of the renewal fund formed by the industrial amortisation, as its name indicates, it should only be used for renewals and not for extensions to existing installations.

Naturally for those Railways working at a profit — I must keep coming back to this idea — it is desirable that an important

proportion of the profits be set aside in a fund intended for improvements.

But Railways run at a loss are in a different position.

Finally, since most of the Railways are run at a loss and consequently have no funds to spare for such a purpose, it is necessary, in order to put them in a position to meet other transport undertakings by road or water on an equal footing, that the cost of long term capital investments, of which I spoke just now : permanent way, buildings, bridges, etc., should be directly attributed to the operating account without making any distinction between them and current maintenance as Messrs. HOULEZ and MARIN suggested. As regards the form, for Railways run at a loss, i.e. for most Railways, charging to the operating account sums intended to feed a renewal fund being followed without mercy by the State Departments which have to pass the budget for the railway works programmes and costs — Departments, which for reasons of economy are sure to reduce the figures — recourse to an interest bearing loan both to renew and to modernise and to extend constitutes the most practical method to arrive at the renewal on the railways.

In effect, once the loan has been placed, the obligation incurred, the State Departments cannot stop payment of the corresponding sinking fund charges.

Moreover, this was the way in which the railway acted to start with when a considerable amount of capital was required. Why should they not go on in the same way now that many Railways — especially those run at a loss — require a

great deal of capital to modernise themselves?

It might be objected that because of the constant increase in prices, the consequence of devaluation, the loans will grow and grow and end by constituting a colossal charge for amortisation.

This objection is only valid in appearance. In reality, the ever increasing sum total of the obligatory debt in view of the constantly depreciating value of money will have the same intrinsic value as at the beginning. And since, taking the figures of the charges which future generations will have to bear to cover the deficit, the amortisation of the loans contracted in this way, this amortisation, in view of the intrinsic decline in the value of money, will always remain lower than the user value of the stock and installations.

So there is no fear that in this case future generations will have to support a very heavy burden because in the past an excessive amount of loans were contracted instead of charging expenditure directly to the operating costs.

Naturally, whether renewal takes place by using a renewal fund built up from annual contributions from the operating account, or by using the money obtained from new loans whose amortisation will be charged up to the operating account, directly or indirectly, it is always the operating account which actually pays for renewals.

The whole question is to decide whether it is to be assured in the present, the present assuming the amortisation charges for the new stock for the future, or whether it is to be assured by a loan.

Which one of these two methods is

used is therefore merely a matter of form. A loan has, however, the advantage of facilitating in practice the realisation of improvements and arbitrarily getting over the difficulties caused by estimating what renewal funds are required.

The Reporters found, moreover, when they analysed the replies received, that very different methods are used.

The President (in French). — Gentlemen, this is a fundamental problem. We have accepted the principle of autofinance and as a result I think we cannot accept the principle of renewals by means of loans. I understand Mr. ELEFTERIADÈS's point very well. In a time of inflation, it is possible to argue like this, but we want to speak of a sound position. In case of inflation, each Administration looks for the easiest way out. But in our resolutions, in our postulations, we cannot consider inflation to be the normal state of affairs.

Consequently, I think if we accept the principle of autofinance, we necessarily exclude the principle of renewals by means of loans. This seems very clear to me. We cannot contradict ourselves.

However I understand what Mr. ELEFTERIADÈS means. When there is inflation, we can borrow. The debts are amortised. But this is an unsound situation. Let us not forget that the Railways are victims of inflation. On the one hand, certainly the debts are amortised, but on the other hand, our costs increase whereas our tariffs do not increase. Consequently, the Railways have no interest in considering inflation; they will be its victims. Therefore, we must be quite clear. But if there is inflation in a given country, each railway will try to find the easiest

way out. Are we all agreed upon the principles?

Mr. Bosc (in French). — I would like to add a word to what you have just said, Mr. PRESIDENT, regarding the major drawbacks of what I can call a solution of expediency. Obviously, it is one way out to make the Governments pay by getting a loan guaranteed by them, leaving it to them to cover the loan. But in my opinion, this has two major drawbacks which will force us to look the situation squarely in the face and suggest to the Governments that lines which are unprofitable be closed down.

The first drawback is that from the moment our finances go wrong, when we are not in a sound financial position, and have to have recourse to loans or subsidies, we have not the means of increasing our profitability; as far as the staff is concerned, their demands increase and we are unable to refuse them.

The second point is still more serious. We spoke just now of the coordination of transport. What is the position of a railway administration in the face of its road competitors and other competitors when these can argue that it has got out of its difficulties by obligatory loans or other means, the cost of which is born by the State? Our railways no longer have a monopoly, our railways suffer from competition. Consequently, they should balance their accounts like other undertakings, and simply ask the State not to inflict special burdens upon them.

Mr. Elefteriadès (in French). — Mr. PRESIDENT, Gentlemen, I can only state that I am in perfect agreement with the

principles you have set out, on the basis of a sound solution. But the trouble is that in practice most railways represented here are running at a loss. By this suggestion of loans, which may appear a priori an excessive facility, abnormal, I simply wished to suggest a realistic solution to the difficulties in which all the Railways have found themselves for years, and in which I fear they will have to remain in view of the interventions of the public services to reduce the deficits, to reduce the entries in the operating accounts and consequently in the operating results of sums intended for renewals which, once again are most desirable since naturally the railways must be modernised.

The President (in French). — I think we are all agreed.

We wish to appeal to the public authorities to be able to assure a sound financial management. If the public authorities do not accept these principles, we are freed from responsibility. This also is very important. We are doing our duty in managing the business as we should manage it. If the public authorities do not allow this, it is up to them to take responsibility. I think we are all agreed upon this point.

Mr. Wansink (in French). — Mr. PRESIDENT, I have a point to raise about the wording. I would like a modification to be made in the text saying : « Auto-finance is only possible with sufficient amortisations and especially amortisations which are really covered by the receipts. » I think that autofinancing is not made with the part of sinking funds which

have not been « earned ». Therefore, I suggest we say : « is only possible with sufficient amortisation, i.e. amortisations covered by the receipts. »

The President (in French). — Agreed. Gentlemen? (*Agreed*).

Mr. Wansink (in French). — My second remark concerns the desiderata which we have formulated concerning charges extraneous to the railway and on coordination.

I recall, Mr. PRESIDENT, that at our last meeting we spoke of the tariff policy of the railways, and I wonder whether it would not be desirable to add a third point saying : « It is necessary for the Governments to authorise the Railways to adapt their tariffs to cover their costs. »

Mr. Elefteriadès (in French). — And competition?

Mr. Wansink (in French). — It is a universal phenomenon. The costs increase but the tariffs do not. It is impossible under such conditions to make any profit at all.

It seems to me it would be a good thing to add a sentence about this.

The President (in French). — You are asking for equality of treatment with your competitors? You are raising the tariff point of view.

Mr. Laloni (in French). — Mr. PRESIDENT, I am sorry but I do not share my friend Mr. WANSINK's opinion. He admits implicitly that the costs of railway transport are lower than those of road

transport. Now, in many countries, the Railway Administrations have been given the liberty to increase their tariffs, but they could not do this, as the road tariffs are already lower, by a great deal, than the railway tariffs.

This being the case, how can we ask to be free to increase the railway tariffs? The Railways could increase them, but their rates are already higher than those of the road.

The President (in French). — Gentlemen, we are running the risk of getting led astray by the tariff policy.

But, Mr. LALONI, the analyses of our costs and our tariffs show that where we suffer from competition, it is not because our costs are too high, but because our tariffs are too high. But we are obliged to charge high rates to cover the deficits due to our social tariffs. In those cases where we could or should increase our tariffs from the commercial point of view, politics prevent us from doing so, and in those cases where our costs would allow us to reduce our rates, again we cannot do so, because we have to cover the deficit from the social tariffs. That is the tragedy of the railways. But here again we are getting on to the tariff policy and I do not wish to risk getting involved in this.

Mr. Cottier (in French). — Mr. PRESIDENT, Gentlemen, I think that Mr. WANSINK's idea about the tariffs might be added to the two points mentioned to obtain better financial equilibrium. The greater tariff flexibility which the Railways are endeavouring to obtain is inspired by the greater liberty regarding tariffs enjoyed

by competitive methods of transport such as the road and riverways.

Consequently, in principle, the idea is already included in that of improved coordination. But as the question is a very topical one, since nearly all the Railways of Europe are struggling to obtain more flexible tariffs, we might include a third point and say : 3) « to make the tariff obligations of the railways as flexible as possible. » as already decided at the London Congress. I remind you of the problem.

Mr. Morganti (in French). — Mr. PRESIDENT, I think that what Mr. WANSINK has just said is already covered by the two Summaries we have previously adopted, i.e. this idea is already included in the idea of coordination and in the idea that if the railways have to support a heavier burden, they should be compensated by the State. It seems to me therefore that it is not necessary to include a further Summary on this point.

The President (in French). — I am wondering whether we could add a sentence like this to the first point of Summary No. 5 : « A more efficient coordination of the different methods of transport must be achieved in order to attain or approach more closely competitive equality between them. » which covers tariff problems and signifies principally greater liberty concerning the tariffs.

Mr. Wansink (in French). — Mr. PRESIDENT, the principle of tariff freedom in my opinion does not apply here. There is a question of the tariffs authorised by the Governments, which are the maximum

tariffs, so that the Railway can depart from them, so long as they are below the maximum authorised tariffs. This is the contract rate with which we are all familiar.

I accept the justification of the remark made by my friend Mr. LALONI, which leads me to think that my text was incomplete, and I suggest saying : « ... to adapt their tariffs better to cover their costs, wherever this is commercially possible. »

The President (in French). — Do you agree to this suggestion? (*Agreed*).

Mr. Meyer (in French). — Mr. PRESIDENT, I have two points to raise.

Where coordination is mentioned, it says : « une coordination encore plus efficace » and in the English text, « a still better coordination. » I suggest we delete the words « encore » and « still » because I think we are all agreed in recognising the effective coordination has not been achieved in any case. « Still more effective » means that it is already effective and could be even more so.

The President (in French). — Are we agreed? We will delete the word « encore » (*Adopted*).

Mr. Meyer (in French). — I come to my second point. In the original text, mention was made of compensating the railway for the charges it carries in the interest of the general economy, as well as charges extraneous to the railway. In the new text, these extraneous charges are no longer included, if I have understood it aright.

Mr. Keller (in French). — Certainly they are. At the end it says : « It goes without saying that charges that have nothing to do with railway operating, imposed by the State, must be paid for by the State. »

Mr. Meyer (in French). — All the same, there is quite a difference between the text now proposed and the original text which was worded as follows : « The railway must be relieved of or indemnified for the costs resulting from services imposed by the State in favour of the economy of the country as a whole and of charges which have nothing to do with the operating. »

A distinction was made between two kinds of charges, whereas in the new text this distinction is no longer made.

Mr. Cottier (in French). — I will try to shorten the discussion by reading point 2 once more : « Insofar as competition is not on a fair footing due to essential public service charges which cannot be dispensed with or reduced, equitable financial compensation should be paid therefore by the State » This is the great principle of service obligations, which are due to the special position of the public law on the railways. It is a special category.

Second category — a third paragraph might even be added — : « It goes without saying that charges extraneous to railway operating... » — public service obligations are not charges extraneous to the operation; they are intrinsic to the operating of railways — « imposed by the State should be paid for by the State. »

« It goes without saying... », I do not think this point needs any further discussion, but this should be added to make this distinction. As I see it, you cannot ask to be freed completely from the charges due to obligations in favour of the public economy. For this purpose, the charges extraneous to the operating have been considered separately. As for the others, we must try to get these abrogated or reduced, but in so far as this cannot be done, compensation should be paid for them.

The President (in French). — I am wondering whether we could not use the old wording of point 1; it was quite clear.

Mr. Meyer (in French). — In my opinion, it was better than the present text, and I was precisely going to suggest that we adopt the previous text.

The President (in French). — Are you agreed? Point 1 of the original text will become the new point 2.

Who prefers **Mr. COTTIER's** suggestion?

(On a count being taken, the majority were in favour of the first suggestion).

The President (in French). — Consequently, the former point 1 becomes the new point 2. *(Adopted).*

Does anyone else wish to say anything? Will the Principal Secretary please read the new wording of point 5.

Mr. Schoonjans (in French). — *Summary No. 5 :*

« 5. To escape from this vicious circle, the railways ought at least to be able to secure the funds needed for renewing

and modernising their equipment by auto-financing. Recourse to loans can be justified where there is an increase in transport capacity or where productivity will be increased; the resultant financial charges should always be capable of being borne to a large extent.

The President (in French). — Agreed? (*Adopted*).

Mr. Schoonjans (in French). — And here is the rest of it :

Auto-financing is only possible with adequate amortisations which are really covered by the receipts. To obtain a better financial equilibrium the following measures are essential :

« 1) A more efficient coordination must be carried out between the various means of transport in order to attain or to approach more closely conditions of competitive equality between them;

« 2) The railway must be relieved of or indemnified for the costs resulting from the services imposed by the State and which favour the economy of the country as a whole; it must also be relieved of charges which are distinct from the operating needs. »

« 3) Railway tariff obligations must be made as flexible as possible wherever this practice is commercially possible.

The President (in French). — Are you all agreed? (*Agreed*).

I am wondering whether it would not be better to reverse points 3 and 2, as if we have not liberty to decide our tariffs, this also is an extraneous charge. (*Approved*).

Mr. Wansink (in French). — I suggest saying :

« It is necessary to authorise the railway to adapt its tariffs better to meet its costs whenever this is commercially possible. »

The President (in French). — Are you agreed on the new point 2? It would be an extraneous charge if we were not allowed to modify the tariffs.

Is point 5 agreed?

Mr. Cottier (in French). — I would like to make a statement.

You have gone back to the original text in which you ask to be freed completely from the obligations demanded by the State in favour of the general economy and from all the charges extraneous to the operating, or if this is not possible, for compensation therefore.

But I regret that the idea of reducing the charges in favour of the public economy has been left out of this text. In effect, the solution aimed at, is giving greater flexibility to the charges of a public service nature. This is a problem. As regards the other problem, that of the charges extraneous to the operating, it goes without saying that when such charges are still necessary — and it happens that they are — they should be compensated by the State. This was the idea of the suggestion I submitted as an amendment.

You have decided otherwise. But I should like it to be mentioned in the minutes of the proceedings that when you speak of compensation, it might be compensation for a service that might eventually be reduced such as more flexible tariffs.

The President (in French). — We have established two points : either compensation or tariff freedom, and we must find a solution between the two in our policy. Policy is the art of the possible. We have certainly fixed the two extremes.

We will take Mr. COTTIER's remarks into account.

Mr. Cecchi (in French). — If I have understood it aright, Mr. PRESIDENT, in the first part of Summary No. 5 we have replaced the expression « sufficient amortisations and above all amortisations « earned » by the expression « sufficient amortisations, i.e. amortisations covered by the receipts. »

This is somewhat imprecise. The two ideas of sufficient amortisations and earned amortisations differ. There may be adequate amortisations which are not covered by the receipts and vice versa.

I suggest we suppress the word « earned » which does not seem sufficient to me and simply say : is only possible with sufficient amortisations, really covered by the receipts. »

Mr. Wansink (in French). — I wanted to make the same point, Mr. PRESIDENT.

The President (in French). — Are you agreed, Gentlemen? (*Adopted*).

Mr. Wansink (in French). — « adequate and earned ».

The President (in French). — I will ask Mr. SCHOONJANS to read point 5 as now approved.

Mr. Schoonjans. — (in French) :

« 5. To escape from this vicious circle, the railways ought at least to be able to secure the funds needed for renewing and modernising their equipment by auto-financing. Recourse to loans can be justified where there is an increase in transport capacity or where productivity will be increased; the resultant financial charges should always be capable of being borne to a large extent. Auto-financing is only possible with adequate amortisations which are really covered by the receipts. To obtain a better financial equilibrium the following measures are essential :

« 1) A more efficient coordination must be carried out between the various means of transport in order to attain or to approach more closely conditions of competitive equality between them;

« 2) Railway tariff obligations must be made as flexible as possible wherever this practice is commercially possible;

« 3) The railway must be relieved of or indemnified for the costs resulting from the services imposed by the State and which favour the economy of the country as a whole; it must also be relieved of charges which are distinct from the operating needs. »

The President (in French). — Are you agreed about the wording of Summary No. 5? (*Agreed*).

We will now go on to point 6, and I will ask Mr. SCHOONJANS to be good enough to read this.

Mr. Schoonjans (in French). — *Summary No. 6 :*

6. As regards the accountancy technique of the amortisations and the presentation of the

accounts, two things appear advisable: on the one hand, that the Railway Administrations or the Political Authorities, in the event of a deficit, give up the practice of reducing the amortisations below the level materially justifiable and so give a seemingly better appearance to the results; this reduction only serves to hide the real situation of the undertaking and to delay the needed measures of rehabilitation. On the other hand, that the Railway Administrations should follow more closely the commercial practice when calculating and presenting the amortisation accounts. Even if the special methods of the railways were identical materially with the classical system of amortisation, which is only partly true, the adoption of this system would have the advantage of making the railway accounts clear and more understandable by business and political men not specialised in railway accountancy. Accounts difficult to understand give rise to suspicion. Now, the railways need the understanding and the confidence of economic and political circles if they are to make good their claims which can be summed up as follows: to demand prices which cover the costs that is to say which make it possible to conserve the substance and the capital.

The President (in French). — Point 6 is now open to discussion.

Has anyone any amendment to suggest?

Mr. Bosc (in French). — I should like a slight correction of the wording (French text) instead of « so give a better appearance to the results » I would like to say : « so give a seemingly better appearance to the results » because they cannot be made better (*Approved*).

Mr. Houlez (in French). — I would like to ask if the Meeting would agree to add after the sentence : « On the other hand, Railway Administrations should follow more closely commercial practice when calculating and presenting the amortisation

accounts » the following sentence : « However in the case of the fixed installations it is recommended to charge the renewal costs directly to the operating account. »

The President (in French). — Gentlemen, what do you think of Mr. HOULEZ's suggestion? What do the Reporters think?

Mr. Keller (in French). — Under condition that the annual renewal actually corresponds to the annual depreciation of the installations, it comes to the same thing as far as the amortisation is concerned. However, all the same I hesitate in recommending this solution. It might be defended in the case — in which most railways find themselves at the present time — when what is renewed each year corresponds to the depreciation. On the other hand, experience with this method in Switzerland was very unfavourable; during crisis years, the renewal was much less than what was needed. In this way in fact the operating costs were reduced and the accounts made to appear better than they were.

Mr. HOULEZ will reply that it is also possible to reduce the amortisations. But in my opinion, and from our own experience — perhaps it may be different in other countries — it is difficult to reduce the amortisations because they are laid down — at least in Switzerland — by regulations approved by the Government, whereas the administration is free to reduce the costs and cut the renewal programme.

For these reasons, I cannot approve this amendment.

The President (in French). — Mr. HOULEZ do you still adhere to your suggestion?

Mr. Houlez (in French). — I will merely remark, Mr. PRESIDENT, as I said moreover at the last meeting, that the Governments also have a habitual tendency to reduce the necessary renewal funds. On the S.N.C.F. for example we have found that the conventional sinking fund for the rolling stock has never been applied. The Government has imposed a reduction of more than 30 or 40 % whereas it has never reduced the proposed programme for the renewal of the fixed installations to such an extent.

Mr. Cecchi (in French). — Mr. PRESIDENT, I am sorry I cannot agree to the suggestion just made; I see no reason to make any exceptions to the principle mentioned. Moreover, I do not see how it is possible to speak of the fixed installations in general. There will also be difficulties in defining them, because the method of direct allocation of the renewal costs to the operating account is not always followed for all the fixed installations. For example, in connection with the substructure, for the rails, there is generally a sinking fund or renewal fund. It is therefore necessary to make a distinction — and this will lead us to particular cases of cunning definitions — of the limits between renewals, maintenance, etc. I do not think it would be opportune to do this here.

Mr. Thomann, *Swiss Federal Railways* (in French). — I also prefer the Reporter's formula, for two reasons :

1) It avoids the complication of a distinction between the fixed installations and the rolling stock;

2) It is much easier to reduce the renewal costs than to reduce the sinking funds; and if it is question of reducing the sinking funds, there is sure to be a certain opposition.

I think therefore that it is in the interests of the railways to adopt the Reporter's formula.

The President (in French). — We will put the formula suggested by Mr. HOULEZ to the vote. Will those in favour please raise their hands. (*Two Delegates.*)

The majority are in favour of the reporter's text.

The President (in French). — Any other comments?

Mr. Elefteriadès (in French). — Summary No. 6 says at the end « ask for rates which cover the costs, i.e. which make it possible to conserve their assets and capital. »

This amounts to remaining within the vicious circle, as most Railways cannot ask rates which cover their costs, i.e. which make it possible for them to conserve their assets and capital. The question therefore arises of knowing whether in order to get out of this vicious circle, we should in reality and not merely in recommendations adopt the practical solutions required.

In any case, I suggest that in the final line : « which make it possible to conserve their assets and capital, » we omit the expression « and capital » as the conservation of the capital is achieved if the

assets are conserved. The capital is the source which makes it possible to realise the assets. The capital is used in the assets. If the assets are conserved, the capital itself is thereby conserved.

The President (in French). — What do the Reporters think?

Mr. Keller (in French). — I do not share this opinion. It is true that in a time of high prices, in conserving the assets the capital is also conserved, but when prices are falling, the conservation of the assets is less than the conservation of the capital, because then the original capital is higher than the capital needed to replace the installations. At such a time, the capital must be taken as the basis because the capital at least must be conserved.

To take an example. A railway with a capital of 10 millions or 100 millions. We want to conserve the assets. We base our amortisations on the replacement costs. At a time of falling prices, this is less than the first capital investment. In this way, we can conserve the assets, but we are not conserving the capital. But at the very least we should conserve the capital. I agree that this is all rather theoretical, because prices are always rising. But in theory, all the same the capital at least should be conserved.

The President (in French). — I am wondering whether we should adopt Mr. ELEFTERIADÈS suggestion? It is difficult for non-specialists to make a distinction between assets and capital. On the other hand, in practice, we are living in a time of latent inflation and there is practically no danger of an appreciable lowering of prices.

Are you agreed on this way of looking at it? Do you agree, Mr. KELLER?

Mr. Keller (in French). — I submit.

The President (in French). — The discussion continues.

Mr. Cecchi (in French). — Mr. PRESIDENT, I find the sentence with which Summary No. 6 ends does not express all that we wished to say and what we have already tried to express more extensively in point 5, in particular. And I am wondering whether it would not be possible to sum up all that we said in point 5 in a single sentence of a few words. Here is a trial wording : « ask for the creation of the conditions necessary for establishing adequate transport rates to cover with the other costs the amortisations essential for the conservation of the assets and capital. »

I also would like to stress the fact that we are now talking about amortisations, the question of the financing of the maintenance and renewal costs. What concerns us is to create the means to cover all the factors of the transport price. But we should put the accent upon the factor « cost » which is the subject of this question and this report.

The President (in French). — I am wondering whether we should repeat all the previous summaries, or whether we could not simply say : « The railways need the understanding and confidence of economic and political circles if they are to make good the claims set out in these Summaries. » That covers it all.

Do you agree? (*Adopted*).

Are there any other questions to raise?

Mr. Cottier (in French). — **Mr. President**, it is my heartfelt wish that there should not be undue criticism of the resolutions, but I am very unhappy because Summary No. 5 has introduced a contradiction with another paragraph.

You agreed that the legal obligation to operate should be considered the essential basis which should allow of a special system of industrial amortisations, even increased ones, for the railways. This was stated in an earlier paragraph. Then in Summary No. 5 you ask for complete liberation from the charges due to the obligations imposed by the State in favour of the general economy.

I would like to ask the question : what do you mean by these charges due to the obligations imposed by the State? I understood that it was question of the four fundamental charges...

The President (in French). — We must first of all complete the discussion of point 6; we can then return to point 5. If we don't do this, we will get lost.

Mr. Cottier (in French). — I am sorry. I thought we had finished discussing point 6.

The President (in French). — Has anyone else anything to say about Summary No. 6?

As no one wishes to say anything, I will ask **Mr. Schoonjans** to read the new wording very slowly :

Mr. Schoonjans (in French) :

« 6. As regards the accountancy technique of the amortisations and the presentation of the accounts, two things

appear desirable : on the one hand, that the Railway Administrations or the public authorities in the event of a deficit renounce the practice of reducing the amortisations below the level materially justifiable and so giving a seemingly better appearance to the results; this reduction only serves to hide the real situation of the undertaking and to delay the needed measures of rehabilitation; on the other hand, the Railway Administrations should follow more closely commercial practice when calculating and presenting the amortisation accounts. Even if the special methods of the railways were identical materially with the conventional method of amortisation, which is only partly true, the adoption of this system would have the advantage of making the railway accounts clearer and more intelligible to business and political men not specialised in railway accountancy. Accounts which are difficult to understand give rise to suspicion. Now, the railways need the understanding and confidence of economic and political circles if they are to make good their claims which are set out in these summaries. »

The President (in French). — Point 6 is therefore accepted. (*Agreed*).

The President (in French). — Does anyone wish to go back to any of the points already agreed? **Mr. Cottier** asked to say something about Summary No. 5. **Mr. Cottier** would you agree to the word « totally » being deleted?

Mr. Cottier (in French). — It is just that we must avoid contradictions between the different resolutions.

It was agreed to stress in particular that the obligation to operate is a special charge upon the Railways, unknown to private industry. Now, I find that there is a certain contradiction when it says in Summary No. 5: the railways must be freed completely or compensated from the charges due to the obligations imposed by the State in favour of the general economy. In my opinion, the legal obligation to operate, the obligation to carry, the tariff obligations and the timetable obligations are the four fundamental charges imposed by the State on the railways.

What is meant by « obligations imposed by the State » in paragraph 5? Are these any special obligations that we have in mind? Or what? It is not possible in a previous paragraph to start with the point of view that the obligation to operate remains in the case of profitable lines, deduct a more effective system of amortisations — this principle was agreed — and admit a certain contradiction in the request addressed to the States asking « complete liberation from the charges due to the prestations asked by the State... »

Mr. Laloni (in French). — In which Summary is mention made of the obligation to carry?

Mr. Cottier (in French). — The obligation to operate.

Mr. Laloni (in French). — In which point?

Mr. Cottier (in French). — Point 3.

Mr. Keller (in French). — An amendment was agreed.

Mr. Cottier (in French). — I will merely ask for it to be mentioned in the minutes of the proceedings.

The President (in French). — Shall we say « as far as possible. »

Mr. Cottier (in French). — The Geneva Conference of Government representatives has discussed this problem for ten years. It has been agreed that the public service charges on the railways must be reduced and in so far as they cannot be removed, indemnity, compensation must be given. That is what is said here. But here we have mixed up the public service burdens and the charges extraneous to the operating. That is what I regret,

The President (in French). — We agreed **Mr. COTTIER's** amendment to point 3 in the third paragraph, saying that the railway amortisations are justified the more they have a legal obligation to operate.

Mr. COTTIER is right. If this third point is agreed, we must say something else here, or there will be a contradiction.

Mr. Marin (in French). — **Mr. PRESIDENT**, **Mr. COTTIER** is quite right. At Geneva, it has always been maintained that the railways are public services and should continue to operate even if there are no economic advantages. For these reasons, in the sentence « The railways must be completely freed or compensated for the charges due... » etc., I would suppress the words « freed » and just

leave « The railways must be compensated for the charges due to the obligations imposed by the State in favour of the general economy. » That would be sufficient.

The President (in French). — This contradicts what has been agreed. As we are asking for a commercial tariff policy for which we must, I think, find a formula. We might say : « to the extent that this is possible politically ». As we want greater tariff freedom, and if this is not possible, compensation. How can we formulate the wish that we want as much freedom as possible? It is a political question.

Mr. Meyer (in French). — I quite understand Mr. COTTIER's anxiety. It is true that at Geneva, with this Co-ordination Commission and in the technical press, we often find mention not only of freeing the railways from the charges they carry in favour of the general economy, but also of greater flexibility. It is not merely a question of freeing them from these charges; it may be possible that this cannot be done. Then, so to speak, a third way lies open : greater flexibility. We are agreed on this point.

But I think Mr. COTTIER can only see the following point : the former text in no way excludes the possibility of greater flexibility. Fundamentally, the two things are related. If the railway is completely freed, it means that it will not be compensated at all, since it has been freed completely. It is also possible that it may be partly freed, in which case there will be partial compensation. Finally, it is possible that it cannot be freed at all,

in which case there should be full compensation.

In principle, therefore, I agree with Mr. COTTIER, but I do not see that the text we have adopted excludes any other possibility. This is included.

Fundamentally, I am fully of the same opinion as the PRESIDENT, who when we were discussing Summary No. 5 said : we are fixing the two extremes : to free completely corresponds with no compensation at all; if freedom is impossible, there should be full compensation.

Now, in practice, this is what most often occurs. If it is only possible to free them in part, the compensation will also be in part.

If these ideas are retained — and I very much hope they will be mentioned in the proceedings — I think that Mr. COTTIER's anxiety will be groundless.

The President (in French). — Does Mr. COTTIER adhere to his suggestion?

Mr. Cottier (in French). — I did not make a suggestion, Mr. PRESIDENT, I just wanted to remind you once more that it is not quite correct to speak of compensation for the charges which are due to the obligations, because the State undertakes other obligations in return : such as guaranteeing the interest, for example, or exemption from taxes. These are the corollaries, the freedoms, the quittances. I will not insist. Mr. MEYER has said what he thinks. That is that it also includes greater flexibility.

Mr. Meyer (in French). — ...is also included and should be included.

Mr. Cottier (in French). — That is the rule.

The President (in French). — So there are no proposed amendments?

Mr. Laloni (in French). — Mr. PRESIDENT, I completely agree with what Mr. MEYER has said. Many of those present are very familiar with the reports of the Conference of Ministers of Transport as regards the financial position of the European railways. Standardisation is dealt with and balance sheets prepared. With this object in view, all the charges which have nothing to do with the operating have to be clearly shown, whatever these may be. Nor has the existence of the specifications on which the railways were granted their concessions been forgotten, etc. But several States have already adopted the principle of compensating the railways for the charges imposed on them by these specifications when they were granted the concession.

It is for this reason that I am in complete agreement that we should leave the text as it is, and not start any further discussions, as this would take us much too far.

At Geneva, standardisation of the accounts was discussed and the principle of compensation agreed to.

The President (in French). — As Mr. COTTIER has not made any suggestion, Summary No. 5 will remain as adopted.

Gentlemen, this brings us to the end of our discussions.

We have had a heroic discussion (*laughter*). I think that if our Summaries are adopted by the Governments, the future of the railways is assured.

First of all, I must thank our two Reporters, Messrs. FELDER and KELLER, who have accomplished a very useful and very interesting task. I must also thank all the Delegates who by taking part in the discussions have helped to improve the Summaries.

Finally, I wish to thank the Secretaries, those who prepared the texts, and the staff who have had a very difficult and heavy job.

I must apologise if I have directed the discussions in a somewhat... mountaineering fashion (*Laughter*).

Mr. Laloni (in French). — Mr. PRESIDENT, you must not say anything else, or we shall be obliged to forget the tact with which you have led the discussions. We all thank you most sincerely. You have been an impeccable President, as whilst respecting the opinions of the different speakers, you have yet known how to give a certain directive to our work. Thank you. (*Applause*).

The President (in French). — The meeting is now at an end.

— The meeting ended at 12.30 p.m.

DISCUSSION AT THE PLENARY SESSION.

Meeting of the 7th October 1958.

PRESIDENT : Sr. D. AGUSTÍN PLANA.

GENERAL SECRETARIES : Messrs. P. GHILAIN and J. PÉREZ POZUELO.

Mr. Ghilain, *General Secretary* (in French). — We now come to Question 8, the Summaries for which as agreed by the Section were published in the Daily Journal of the Congress, Nos. 4 and 6.

— *The reading of these Summaries did not give rise to any comments.*

The President (in French). — We will therefore consider the Summaries for Question 8 as approved.

SUMMARIES.

« 1. The great majority of the Administrations replied in the negative to the question if the state of their equipment corresponded to the present state of the technique, and to the present needs of the traffic. Very great arrears are in general ascertained in the renewal and modernisation of both fixed installations and rolling stock.

« 2. In certain cases these arrears can be explained by war damage and the post-war disturbances. The main reason, however, lies in the fact that the traffic receipts of the railways are insufficient to finance by their own means the renewal and modernisation of their equipment, as industry ge-

« nerally has been or is able to do (auto-financing).

« 3. Auto-financing is possible only provided that the tariffs cover at least the expenses, including amortisations, that is to say amortisations calculated on the economic and not the technical life and on the replacement value.

« This condition is not however fulfilled with most railways. The amortisations are inadequate and even these insufficient amortisations are not covered by the receipts. If the amortisations are insufficient, it is not because the Administrations ignore the harmful consequences which will result. Usually pressure is exerted by the public authorities on the level of amortisation or renewal charges with a view to reducing the deficits to be met by the State. This pressure explains why the deficits are incompletely covered by the State and thus cannot replace insufficient receipts. What the State gives to the railways so far as it meets the deficits is as a rule too much to die and too little to enable them to live.

« The reduction effected in the amor-

« tisation of railways is therefore all the
« more difficult to justify since they
« have legal obligations to operate and
« carry which were imposed on them by
« the States; instead of a reduction,
« these obligations would rather justify
« a strengthening of industrial amorti-
« sation in order to assure the continuity
« of rail transportation, at least for
« those lines which should be preserved
« and for which other modes of trans-
« port should not be substituted.

« 4. The delay in the renewal and
« modernisation of the investments
« renders the technical and financial
« position of the railways graver still
« in face of competition.

« On the one hand, this position makes
« it an obstacle to acquire the means of
« modern technique whose use would
« allow the railways to increase their
« productivity and improve their ser-
« vices.

« On the other hand, it reduces the
« attraction of railway careers for the
« best among the young people.

« The result is a growing deficit
« which, in turn, causes an increasing
« pressure on the amortisations.

« 5. To escape from this vicious
« circle, the railways ought at least to
« be able to secure the funds needed
« for renewing and modernising their
« equipment by auto-financing. Re-
« course to loans can be justified where
« there is an increase in transport capa-
« city or where productivity will be in-
« creased; the resultant financial charges
« should always be capable of being
« borne to a large extent. Auto-financ-

« ing is only possible with adequate
« amortisations which are really covered
« by the receipts. To obtain a better
« financial equilibrium the following
« measures are essential :

« 1) A more efficient coordination
« must be carried out between the va-
« rious means of transport in order to
« attain or to approach more closely
« conditions of competitive equality
« between them;

« 2) Railway tariff obligations must
« be made as flexible as possible wher-
« ever this practice is commercially pos-
« sible;

« 3) The railway must be relieved of
« or indemnified for the costs resulting
« from the services imposed by the State
« and which favour the economy of the
« country as a whole; it must also be
« relieved of charges which are distinct
« from the operating needs.

« 6. As regards the accountancy
« technique of the amortisations and the
« presentation of the accounts, two
« things appear desirable : on the one
« hand, that the Railway Administra-
« tions or the public authorities in the
« event of a deficit renounce the prac-
« tice of reducing the amortisations
« below the level materially justifiable
« and so giving a seemingly better ap-
« pearance to the results; this reduction
« only serves to hide the real situation
« of the undertaking and to delay the
« needed measures of rehabilitation; on
« the other hand, the Railway Admi-
« nistrations should follow more closely
« commercial practice when calculating
« and presenting the amortisation ac-

« counts. Even if the special methods
« of the railways were identical mate-
« rially with the conventional method of
« amortisation, which is only partly
« true, the adoption of this system would
« have the advantage of making the rail-
« way accounts clearer and more intel-
« ligible to business and political men

« not specialised in railway accountancy.
« Accounts which are difficult to under-
« stand give rise to suspicion. Now, the
« railways need the understanding and
« confidence of economic and political
« circles if they are to make good their
« claims which are set out in these sum-
« maries. »



Flame Ceramics.

New process may improve Diesel engine performance when applied to « hot » components,

by R. A. BARDWELL,

Engineer of Tests of the Chicago & Eastern Illinois Railroad.

(From the *Modern Railroads*, March 1959.)

The Chicago & Eastern Illinois Railroad, in its freight and passenger operations, depends on 72 big General Motors EMD Diesel locomotives (V-16 cylinder jobs, some 1500 and some 1750 HP) plus three two-engine V-12 cylinder road Diesels. The railroad also has 28 switching Diesels. Seven of them are Alco uprights and the rest EMD's. We have one RDC rail Diesel for short-line passenger service.

Maintenance operations, conducted at our shops in Danville, Ill., represent, as with all railroad systems, an important element in our costs. As with other railroad systems, we are constantly seeking ways in which to extend the routine servicing periods, to lessen the replacement of parts, oil filters, cleaning, and changes of oil. We are, of course, constantly seeking the means to reduce fuel consumption and to lengthen the life of our lubricating oil.

Recently we have been experimenting with a new and revolutionary process called « Flame Ceramics », the world-wide rights to which are owned by Continental Coatings Corporation, located at 17706 Miles Ave., Cleveland, Ohio. This new process permits combustion surfaces (piston crowns, valves, and cylinder heads) to be coated with a rare earth oxide which improves combustion and reduces heating of these vital parts.

Flame Ceramics was developed by the Armour Research Foundation of the Illinois Institute of Technology. Brought to commercial usefulness at a reported cost of over \$200 000, it represents an effective technique for spraying such powders as

alumina, zirconia, iron titanium oxide-alumina, iron titanium oxide, titania, mullite, and a rare earth oxide mixture.

The powders may be sprayed on many types of surfaces through the medium of a light spray gun, the coating being sintered in an oxy-hydrogen flame just beyond the nozzle of the gun. The powders are carried by the oxygen stream which feeds through a pedestal hopper. The under-surface does not have to be highly heated.

Reports on Flame Ceramics have stressed characteristics of resistance to temperatures up to 5500° F., a hardness (with certain coatings) up to twice that of tool steel, sufficient mechanical strength for the ceramic shell to remain intact after the metal under-material has melted away, and effective bonding.

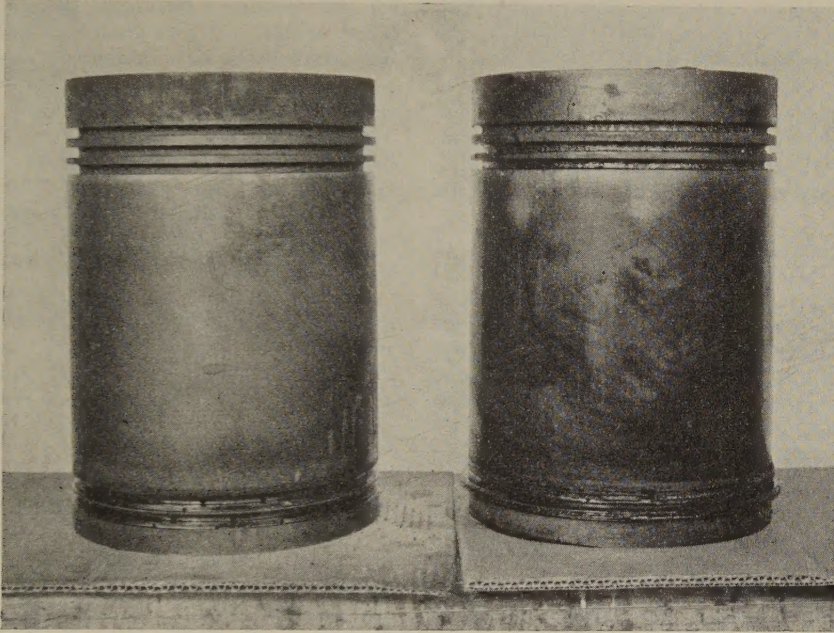
Our own interest in Flame Ceramics was aroused by a report from Armour Foundation which defined the development as a catalytic ceramic coating for piston heads which promises to reduce the amount of carbon monoxide and unburned hydrocarbons in exhaust gas. « In addition », the report stated, « the coating offers promise for thermal insulation, greater combustion efficiency, and thus more economical operation ».

We began our experiment with Flame Ceramics on December 4, 1957, when one of our 567 B EMD F7 Diesels came into the shop at Danville for repairs. Continental Coatings Corporation sprayed two pistons and the locomotive was sent out on duty.

As this engine came in for its monthly

inspection and servicing, the piston crowns, the rings and the air ports in the cylinder liners were carefully examined. We discovered, first, that the coatings had remained firmly bonded to the piston crowns; second, that the piston-rings were in good

enough to cause us, in April, 1958, to experiment with the coating on an entire locomotive engine. Once again, we chose a 1 500 HP 567 B EMD Diesel and coated the crowns of all 16 pistons with rare earth oxide .004 in. thick.



The two pistons, shown in this picture, were taken from two different diesel engines of Chicago & Eastern Illinois Railroad. The piston on the left, which was coated with Flame Ceramic rare earth oxide, is free of varnish deposit; the rings and ring-grooves are clean; the rings have been reapplied to another engine. The piston on the right was uncoated. Note the gummed rings and grooves and varnish deposit on the piston-skirt.

shape, with the grooves apparently unclogged; and, third, that the air ports were free of gummy deposits. On the other hand, the non-coated piston situation was quite different. The rings were not in as good a shape, nor were the grooves. The air ports of the liners were becoming clogged.

The test was not conclusive, since the non-coated pistons had been in the engine some six months longer than the coated pistons; yet the results were interesting

Careful inspection while in service showed that the previous applications were still holding good. The coatings remained well bonded to the crowns, the rings and grooves were in good condition, and the cylinder liner air ports were clean. Blotter tests and centrifuge tests of the lubricating oil showed that the change period on oil filters might be jumped to 20 000 miles from the existing rule of 7 000 to 8 000 miles.

In September, 1958, because of a water-

seal leak in this engine, one of the pistons and its cylinder liner were removed, permitting a full examination. The result was encouraging. The piston skirt was free of varnish deposits and free from carbon in the ring grooves. The rings themselves were as good as new and could be used again. The rare earth oxide coating was still .004 in. thick in places and never less than .003 in.

Most interesting was the condition of the cylinder-liner air ports. They were practically free of gummy deposits, completely clean as compared with cylinder-liners taken from other Diesels in the shop.

A spectrographic analysis was made of the oil after 50 000 miles of service. It showed a very low content of iron — some 20 parts per million. Colorometric analysis on the latest sample indicates only 18 parts per million iron content, as against the 25 parts per million considered very low for a fine engine.

From these encouraging results, we feel there is sufficient evidence on hand to recommend further coating with rare earth oxides of pistons and in addition the valves and cylinder heads. We understand that the Electro-Motive Division of General Motors is engaged in elaborate tests of

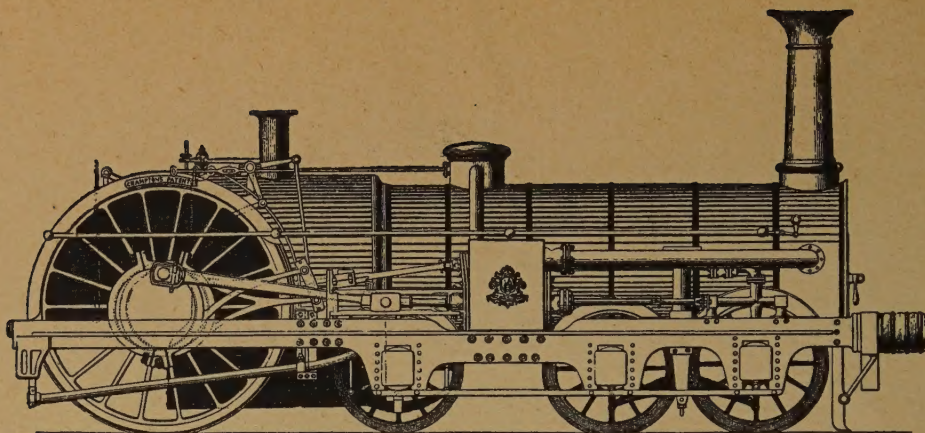
Flame Ceramics and that at least two other railroads have the coatings under test.

The theory of Flame Ceramics.

In the meantime, we have developed theories which can, at least in part, account for our results. Basically, the rare earth oxide coating with its great thermal insulation and high heat emissivity keeps the heat within the combustion chamber, preventing its dissipation through the piston. The high surface temperature of the coating, together with its unique catalytic effect, insures more complete combustion. The visible results include cleaner liners, no clogged-up ports, clean rings and grooves, and pistons free of varnish deposits.

As yet, C & EI can offer no proofs in the matter of fuel savings; however, the conclusion is inescapable that if combustion is more complete, the railroad should be getting either more horsepower out of the same quantity of fuel or the same horsepower from less fuel.

We feel that by having our combustion chambers coated, a considerable savings can be derived as a result of cleaner working parts, better lubrication, increased mileage between oil filter changes, a more efficient engine, and less maintenance.

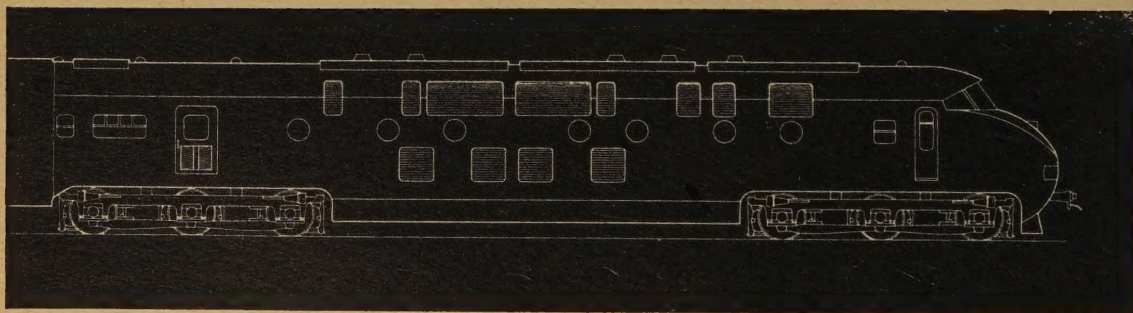


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